Holiday Homework

CLASS XII (2025-26)

Tiny tasks, big gains!

INDEX

Bal Bharati
PUBLIC SCHOOL

SEWA PROJECT

"This SEWA project aims to foster social responsibility, empathy, and active citizenship among students. Through hands-on community engagement, we strive to make a positive impact while developing essential life skills. This project is an integral part of our internal assessment and holistic educational growth."

Project - 1: Being Safe and Responsible

Project Focus - First Aid/ Health Club; Disaster Prevention and Mitigation

Target Point - To bring awareness in the society about safety concern, reactions to different types of dangers and how to give first aid during emergencies.

Learning Outcomes:
   Learner will
- understand importance of being safe and responsible.
- understand the importance of first aid, dealing with cuts and bruises, heat exhaustion and heat stroke, breathing difficulties, cuts nosebleeds, choking, basic sports injuries
- practice first aid skills in order to empower them to help people in emergencies. learn to prepare a first aid kit.

Project Process
- The students will be provided tips for facing danger.
- Informative lecture-demonstration sessions will be arranged with doctors from different hospitals including a dentist.
- The students will be provided first aid boxes.
- The students will be divided into four groups for conducting the project. A project manager from within the group will check the progress of the students for their field work. The project manager will bring a camera to make video of first aid provision to others.
- After collecting data about the topic, the students will discuss various dangers in the classroom and will come up with life saving and precautionary reactions. They will be asked the following questions:
  - What is your very first response to danger?
  - Why is first aid not a common practice?
  - How can it be made common practice among people of the community?
  - Can you explain different situations in which first aid is required?
  - What can be your first reaction towards an injured person?
  - What will you do, if you see an unconscious person lying in a pool of blood?
  - What can be done to make first aid a common practice?
- The students will go to the hospitals in order to attend lectures of the doctors about first aid. Each group of students will visit 3 doctors. The students will also make videos of the sessions held with the doctors. 'First

aid' videos will be shown to students.
- Practice of first aid will be done in the classroom.
- The students will learn how to check temperature and blood pressure of a person.

Project – 2: Environment Conscious Citizens as Part of Eco Clubs

Project Rationale -
Our world is changing, and changing fast. Our environment is pressured due to over-exploitation of our finite natural resources, climate change, and rapidly changing economic and social situations. This is leading to us leaving behind a complicated and difficult mess for our future generations to deal with. Unless the young generation does not build an appreciation for nature and see value in its preservation, we will continue to deplete our natural resources, causing irreparable damage to our planet.

Our education systems must ensure our children develop an understanding of the environmental systems and learn new skills and new ways of living sustainably with respect for themselves, each other, their communities and their surrounding environment.

Education has been globally recognized as a key solution to achieving sustainability in development and current lifestyle approaches. To achieve this, it is important to target all the stakeholders by empowering them to take conservation action. Classes IX to XII are the most crucial years of laying foundation for professional life, thus an intervention at this stage is most impactful in shaping the society.

Project Focus-
This is a leadership building exercise and will help the students to become a thinking and environmentally conscious individual. It is a journey of self-evaluation and personal and professional growth.

Activity 3 : Plantation of Shade/ Fuel/ Ornamental/ Avenue trees
- Writing a play and enacting the procedures
- Showing a video film
- Making a video film
- Importance of trees for ecological balance of the environment.
- Local and exotic trees for various purposes.
- Factors affecting normal growth of the plants.
- Specific problems pertaining to certain tree species and their solution.
- Raising seedlings in the nursery, nursery management.
- Vegetative propagation of ornamental trees.
- Planning layout.
- Planting and after care.

Project / Activity 4 : Participation in Adult-Literacy Programmes
Specific Activities

- Survey of the neighbourhood and identification of adult illiterates. Making door-to-door visits and persuading them to join literacy classes
  - Grouping the illiterates according to their age, occupation and interests.
  - Grouping students on the basis of their known capabilities and interests.
  - Selecting literacy materials with the guidance and help of the teacher.
  - Making spatial and physical arrangements for conducting the programme.
  - Making adequate preparation for teaching, including the selection of teaching aids.
  - Teaching adults in groups.
  - Getting together in class and reviewing the progress of work and problems, if any
  - Modifying the teaching methods and procedures in the light of experience.
  - Evaluating the progress of adult literacy and maintaining records.
  - Materials, Tools and Equipment Required : Charts, maps, register, almirah, etc.

Procedure:
  - Develop a survey form and conduct the same
  - Develop a pre test and post test and administrator
  - Conducting an end of the project assessment for the adult learners

GUIDELINES

Introduction

SEWA aims to develop a whole person in their intellectual, personal, social, emotional and social growth. Learners engaged in this program are expected to be life-long learners and through experiential learning develop as active citizens and caring and compassionate humans. The experiential and constructive modes of learning emphasize the immediate personal experience of the learner and view learning as a process.

SEWA takes learning beyond the walls of the classroom and sometimes even beyond the boundaries of the school, building bridges with the authentic and real world in meaningful and positive ways. The following maybe noted with regard to SEWA:

- SEWA is an integral component of HPE.
- This aspect aims to focus on the mental/emotional and social health of the child

Objective:

There is an urgent need to foster strong mental and social health amongst today's children so that they can connect with their peers, their elders, the community, the environment, etc. The main objective of the SEWA projects is to direct children's mind in constructive activities with positive outcomes through the facilitation of creative and critical thinking. This would help them to develop self-confidence and self-esteem.

The learning outcomes expected to be developed and fostered through participation in SEWA are experiential:

The Learner:

- Develops Life Skills of **Self-Awareness and Empathy.** *
- Develops Creative and Critical Thinking Skills. *
- Becomes a **caring and compassionate** individual.*
- Responds as a socially empowered change maker. *
- Acquires the skills to be an active leader and initiator of change.
- Plans, implements and delivers projects connected to the real world.
- Visualizes and participates in a world going beyond the classroom and often/ sometimes beyond the boundaries of the school.
- Formulates strategies to deliver meaningful programs and projects
- Critiques premises as a **reflective enquirer**.
- Demonstrates fair play and **non-judgmental ethical behavior.** *
- Actively engages in SEWA activities as an individual and at a team level.
- Participates in various activities in **age appropriate ways across disciplines**.
- Selects and applies skills, facts and compositional ideas.
- **Competes with oneself** to improve **self-performance** and **evaluate strategies for further enhancement. ***
- Knows, understand and applies rules.

My SEWA Promise Form (illustrative)

Dear Student,

SEWA is a firm step to prepare you for life. It is a voluntary project experience. You have to complete **My SEWA Promise Form** and obtain prior approval for the activity/project. Selection of a SEWA activity, development, implementation of the proposal and evaluation of the activity is the responsibility of each student. Signature of the parent indicates review and approval of this proposal.

Student's Name: _____ Class: _____

(Print or type)

Brief Description of the Activity:

Duration (Days and Time):_____ Estimated Hours:_____

Name of Mentor Teacher:_____

Student Signature: _____Date:_____

Parent Signature:_____Date:_____

SEWA Hourly Schedule (illustrative)

Hour Count	Date and Day	Proposed Activity Plan
Hour 1		
Hour 2		
Hour 3		
Hour 4		
Hour 5		
Hour 6		

SEWA Hour Log (illustrative)

STUDENT NAME: _____

PROJECT: _____

Date	Activity	Hours	Mentor's Signature

PROJECT GUIDELINES (2025-2026)

SUBJECT	ACCOUNTANCY
CLASS	XII
MARKS FOR PROJECT (MARKING SCHEME)	1. Knowledge Content/Research Work and Presentation Technique 12 marks 2. Viva-voce 8 marks **Total 20 Marks**
MODE OF SUBMISSION (TYPED/HANDWRITTEN)	**HANDWRITTEN in project file**
GROUP/INDIVIDUAL	**INDIVIDUAL**
LIST OF EXPERIMENTS/TOPICS	One specific project based on financial statement analysis of a company covering any two aspects from the following: 1. **Comparative and common size financial Statements** (develop the skill of preparation of preparation of comparative and common size statement, understand their uses and difference between the two.) 2. **Accounting Ratios** (Financial Statement Analysis) Meaning, Significance Objectives, importance and limitations. • Tools for Financial Statement Analysis: Comparative statements, common size statements, Ratio analysis, Cash flow analysis. • Accounting Ratios: Meaning, Objectives, Advantages, classification, and computation. • Liquidity Ratios: Current ratio and Quick ratio. • Solvency Ratios: Debt to Equity Ratio, Total Asset to Debt Ratio, Proprietary Ratio and Interest Coverage Ratio. Debt to Capital Employed Ratio. • Activity Ratios: Inventory Turnover Ratio, Trade Receivables Turnover Ratio, Trade Payables Turnover Ratio, Fixed Asset Turnover Ratio, Net Asset Turnover Ratio and Working Capital Turnover Ratio. • Profitability Ratios: Gross Profit Ratio, Operating Ratio, Operating Profit Ratio, Net Profit Ratio and Return on Investment) 3. **Segment Reports** (Meaning, Nature, Uses and importance of financial Statement. Statement of Profit and Loss and Balance Sheet)

	4. **Cash Flow Statements** (Meaning, objectives Benefits, Cash and Cash Equivalents, Classification of Activities, and preparation (as per AS 3 (Revised) (Indirect Method only)

GUIDELINES

The objectives of the project work are to enable learners to:
• Probe deeper into theoretical concepts learnt in classes XI and XII (Journals, ledgers, Trial balance, Trading account, Profit and loss account and Balance sheet)
• Analyse and evaluate real-world Financial position of company using theoretical constructs and arguments
• Demonstrate the learning of various tools of financial statement analysis based on facts.
• Follow up aspects of financial statement analysis tools in which learners have interest
• Develop communication skills to argue logically.

The expectations of the project work are that:
• learners will complete only **ONE project** in each academic session
• project should be of 3,500-4,000 words (including diagrams, flow chart, pictorials, real life financial statements of companies & graphs), preferably hand-written
• it will be an independent, self-directed piece of study.

Scope of the project:
Learners may work upon the following lines as a suggested flow chart:
1. Title Page : Include the title of your project, your name, class, roll number, school name, and the academic year.
2. Acknowledgments: If you received assistance or guidance from anyone, acknowledge them here.
3. Table of Contents: List all the sections and subsections of your project with corresponding page numbers.
4. Introduction :
   • Briefly introduce the purpose and scope of your project.
   • Mention why the topic is relevant and its importance in the field of accountancy.
5. Objectives :
   • Clearly state the objectives of your project. What do you aim to achieve through this project?
   • Outline the specific topics or areas you will cover.
6. Research Methodology :
   • Explain the methods you used to gather information for your project. Did you use textbooks, online resources, case studies, interviews, surveys, etc.?
   • Describe any challenges faced during the research process and how you addressed them.
7. Topics Covered :
   • List the main topics or chapters covered in your project. This might include:

- Analysis of Financial Statements
- Cash Flow Statement
- Accounting Ratios
- Segment reporting

- Select any one topic from the above list. For each topic, provide detailed explanations, examples, and illustrations.

8. **Presentation of Content:**
   - Organize your project into sections corresponding to the topics covered.
   - Use clear headings and subheadings to structure your content logically.
   - Incorporate text explanations, examples, diagrams, charts, and tables to enhance clarity and understanding.

9. **Analysis and Interpretation:**
   - Analyze the financial data provided in case studies or real-life examples.
   - Interpret the financial statements and accounting ratios to assess the financial health and performance of a business.

10. **Conclusion:**
    - Summarize the key findings and insights from your project.
    - Reflect on the significance of the topics covered and their relevance in the field of accountancy.

11. **Recommendations** (if applicable):
    - Offer recommendations or suggestions based on your analysis and findings.

12. **References/Biblography:**
    - Provide a list of all the sources (books, articles, websites, etc.) you referred to during your research.

13. **Appendices:**
    - Include any supplementary information, such as additional data, sample financial statements, solved problems, or case studies.

Expected Checklist:
• Introduction of topic/title
• Identifying the causes, consequences and/or remedies
• Various stakeholders and impact of tools to analyse financial position on each of them
• Advantages and disadvantages of situations or issues identified
• Validity, reliability, appropriateness and relevance of data used for research work and for presentation in the project file
• Presentation and writing based on facts in project file
• Citation of the materials referred to, in the file in footnotes, resources section, bibliography etc.

Mode of presentation/submission of the Project:
At the end of the stipulated term, each learner will present the research work in the Project File to the External and Internal examiner. The questions should be asked from the Research Work/ Project File of the learner. The Internal Examiner should ensure that the study submitted by the learner is his/her own original work. In case of any doubt, authenticity should be checked and verified.

PROJECT GUIDELINES (2025-2026)

SUBJECT	PSYCHOLOGY
CLASS	XII
MARKS FOR PROJECT (MARKING SCHEME)	5
MODE OF SUBMISSION (TYPED/HANDWRITTEN)	HANDWRITTEN
GROUP/INDIVIDUAL	INDIVIDUAL
LIST OF EXPERIMENTS/TOPICS	CASE PROFILE a.) Is a prodigy and is exhibiting superior/ability in any of the domain (sports, music, academics etc.) b.) Requires career counselling c.) Has any of the following difficulties- learning disability, ADHD, speech delays, physical ailment which is impairing everyday functioning.

GUIDELINES

A.) The objectives of the project work are to enable learners to:

• To develop in learners an appreciation of the nature of psychological knowledge and its application to various aspects of life.

• To enable learners to become perceptive, socially aware and self-reflective.

• To develop students' communication skills by effectively presenting findings and insights from the case profile.

- To develop critical thinking and analytical skills by analyzing the psychological data gathered.

B.) The expectations of the project work are that:

- Students to utilize multiple methods of data collection- interview, observation, self-report measure, narrative analysis etc.
- The case profile should be the independent work of the students and students to write interpretation after compilation of data.
- Students to strictly adhere to the ethical guidelines while gathering and presenting data for the case profile. Subject details should be kept strictly confidential.
- Case profile should be comprehensive (demographic, physical, physiological and psychological data).

C.) Scope of the project:

Suggested flow chart:

- Choose a title/topic
- Collection of the research material/data
- Organization of material/data

- **Present material/data**
- **Analysing the material/data for conclusion**
- **Draw the relevant conclusion**
- **Presentation of the Project Work**

D.) Expected Checklist:
Suggested Format for Writing a Psychological Testing Report
1. Problem/Title of the Study (e.g., to study the level of adjustment/personality/ aptitude of Class X students).
2. Introduction
- **Basic Concepts**

3. Method
- **Subject**
- **Name**
- **Age**
- **Gender**
- **Class**

(Note: As the data is to be kept confidential, the details of the subject may be given under a fictitious number.)
4. Material required
- **Brief description of the test (name of**
- **the test, author, year, psychometric**
- **properties, etc.).**
- **Other materials (e.g., stop watch,**
- **screen, etc.).**

5. Procedure
- **Process of test administration, such as rapport formation, instructions, precautions, actual conduct of test, etc.**
- **Scoring of the test**
- **Preparation of graph, psychogram, etc.**
- **(if required).**

4. Results and Conclusions
- **Describing subject's scores in terms of norms and drawing conclusions.**

5. References
- **List the books, manuals and materials**
- **E.) Mode of presentation/submission of the Project:**
- **Case profile to be handwritten and submitted in a spiral bound file. It should include relevant and appropriate pictures, family tree, reports etc.**
- **Case profile will be submitted to the External Board Examiner.**
- **Viva Voce (for class XII practical board examination) to be based on Case Profile.**

SUBJECT	PHYSICS
CLASS	XII
MARKS FOR PROJECT (MARKING SCHEME)	1. Scientific Thought and feasible solution-3 marks 2. Creative, Resourcefulness and Inventiveness-5 marks 3. Research Skill-2 marks 4. Presentation-5 marks 5. Viva voce-5 marks Total Marks-20
MODE OF SUBMISSION (TYPED/HANDWRITTEN)	HANDWRITTEN
GROUP/INDIVIDUAL	INDIVIDUAL
LIST OF EXPERIMENTS/TOPICS	1. To study various factors on which the internal resistance/EMF of a cell depends. 2. To study the variations in current flowing in a circuit containing an LDR because of a variation in (a) the power of the incandescent lamp, used to 'illuminate' the LDR (keeping all the lamps at a fixed distance). (b) the distance of a incandescent lamp (of fixed power) used to 'illuminate' the LDR. 3. To find the refractive indices of (a) water (b) oil (transparent) using a plane mirror, an equiconvex lens (made from a glass of known refractive index) and an adjustable object needle. 4. To investigate the relation between the ratio of (i) output and input voltage and (ii) number of turns in the secondary coil and primary coil of a self-designed transformer. 5. To investigate the dependence of the angle of deviation on the angle of incidence using a hollow prism filled one by one, with different transparent fluids. 6. To estimate the charge induced on each one of the two identical Styrofoam (or pith) balls suspended in a vertical plane by making use of Coulomb's law. 7. To study the factor on which the self-inductance of a coil depends by observing the effect of this coil, when put in series with a resistor/(bulb) in a circuit fed up by an A.C. source of adjustable frequency. 8. To study the earth's magnetic field using a compass needle -bar magnet by plotting magnetic field lines and tangent galvanometer. ● Any other topic based on concepts of Physics

GUIDELINES

The objectives of the project work are to enable learners to:

- Engage in practical exploration and investigation of a specific area in Physics.
- Enhance understanding of a chosen topic through experimentation, analysis, and documentation.
- Develop problem-solving, critical thinking, and research skills by formulating hypotheses and drawing conclusions.
- Encourage curiosity and interest in Physics through a hands-on approach.

Expectations of the Project:

- A clear, focused research question or hypothesis to guide the investigation.
- A well-structured experimental plan that outlines the methodology, variables, and data collection techniques.
- Accurate data collection and analysis using appropriate tools and methods.
- Clear presentation of results, including data visualizations such as graphs, charts, or tables.
- A conclusion that summarizes the findings and suggests possible future research directions.
- Proper documentation of sources and references.

Scope of the Project:

- Projects can cover various topics in Physics such as electricity, thermodynamics, optics, electromagnetism, modern Physics and more.
- The project may involve designing experiments, simulations, or theoretical models to explore a specific concept.
- The project may be a solution of existing problems or an innovative application of any scientific principle.

Expected Checklist:

- Research Question: Clearly define the research question or hypothesis.
- Literature Review: Conduct background research and compile relevant information.
- Experimental Plan: Design the experiment, including materials, procedures, and data collection methods.
- Data Collection: Gather data accurately and systematically.
- Data Analysis: Analyze the data using appropriate statistical or graphical methods.
- Results: Present the results clearly, using graphs, charts, or tables as needed.
- Interpretation: Interpret the results in relation to the research question or hypothesis.
- Conclusion: Summarize the findings and suggest areas for further research.
- Documentation: Cite sources and references accurately.

- **Presentation: Prepare the project for presentation.**

Mode of Presentation:
- **Written Report: A detailed report that includes the research question, literature review, experimental plan, data analysis, results, interpretation, and conclusion. Include proper citations and references.**

- **Digital Presentation: A digital format such as a PowerPoint or Google Slides presentation that covers the project's objectives, methodology, results, and conclusion. Include visual aids and interactive elements as appropriate.**
- **Demonstration: If the project involves an experiment or model, consider a live demonstration to illustrate the findings.**

PROJECT GUIDELINES (2025-2026)

SUBJECT	BUSINESS STUDIES
CLASS	XII
MARKS FOR PROJECT (MARKING SCHEME)	1. Relevance of the topic 3 marks 2. Knowledge Content/Research Work 6 marks 3. Presentation Technique 3 marks 4. Viva-voce 8 marks **Total 20 Marks**
MODE OF SUBMISSION (TYPED/HANDWRITTEN)	HANDWRITTEN
GROUP/INDIVIDUAL	INDIVIDUAL

LIST OF EXPERIMENTS/TOPICS	1. Project One: Elements of Business Environment
	  a. Changes witnessed over the last few years on mode of packaging and its economic impact
	  b. The reasons behind changes in the following: Coca – Cola and Fanta in the seventies to Thums up and Campa Cola in the eighties to Pepsi and Coke in nineties
	  c. Changing role of the women in the past 25 years relating to joint families, nuclear families, women as a bread earner of the family, changes in the requirement trend of mixers, washing machines, micro wave and standard of living.
	  d. The changes in the pattern of import and export of different Products.
	  e. The trend in the changing interest rates and their effect on savings.
	  f. A study on child labour laws, its implementation and consequences.
	  g. The state of 'anti plastic campaign,' the law, its effects and implementation.
	  h. The laws of mining /setting up of industries, rules and regulations, licences required for running that business.
	  i. Social factors affecting acceptance and rejection of an identified product. (Dish washer, Atta maker, etc)
	  j. What has the effect of change in environment on the types of goods and services?
	  k. Change in the man-machine ratio with technological advances resulting in change of cost structure.
	  l. Effect of changes in technological environment on the behaviour of employee.
	2. Project Two: Principles of Management
	3. Project Three: Stock Exchange
	4. Project Four: Marketing

GUIDELINES

The objectives of the project work are to enable learners to:

After doing the Project Work in Business Studies, the students will be able to do the following:

• develop a practical approach by using modern technologies in the field of business and management;

• get an opportunity for exposure to the operational environment in the field of business management and related services;

• inculcate important skills of team work, problem solving, time management, information collection, processing, analysing and synthesizing relevant information to derive meaningful conclusions

• get involved in the process of research work; demonstrate his or her capabilities while working independently and

• make studies an enjoyable experience to cherish.

Scope of the project:

Learners may work upon the following lines as a suggested flow chart:

- Choose a title/topic
- Collection of the research material/data
- Organization of material/data
- Present material/data
- Analysing the material/data for conclusion
- Draw the relevant conclusion
- Presentation of the Project Work

Expected Checklist:

Following essentials are required to be fulfilled for its preparation and submission.

1. The total length of the project will be of 25 to 30 pages.
2. The project should be handwritten.
3. The project should be presented in a neat folder.
4. The project report should be developed in the following sequence-

Cover page should include the title of the Project,

student information, school and year.

List of contents.

Acknowledgements and preface (acknowledging the institution, the places visited and the persons who have helped).

Introduction.

Topic with suitable heading.

Planning and activities done during the project, if any.

Observations and findings of the visit

Mode of presentation/submission of the Project:
At the end of the stipulated term, each learner will present the research work in the Project File to the External and Internal examiner. The questions should be asked from the Research Work/ Project File of the learner. The Internal Examiner should ensure that the study submitted by the learner is his/her own original work. In case of any doubt, authenticity should be checked and verified.

PROJECT GUIDELINES (2025-2026)

SUBJECT	**ENGLISH**
CLASS	**XI-XII**
MARKS FOR PROJECT (MARKING SCHEME)	**20 MARKS** **ALS- 5+5 = 10 MARKS** **PROJECT WORK + VIVA- 10 MARKS**
MODE OF SUBMISSION (TYPED/HANDWRITTEN)	**(TYPED OR HANDWIRTTEN)**
GROUP/INDIVIDUAL	**INDIVIDUAL**
LIST OF EXPERIMENTS/TOPICS	a) **Interview Based Research** **Students can choose a topic on which to do their research/ interview** □ **The student then conducts interviews with a few neighbours on the topic. For an interview, with the help of the teacher, student will frame questions based on the preliminary research/background.** □ **The student will then write an essay/ write up / report etc. up to 1000 words on his/her research and submit it. He/ She will then take a viva on the research project. The project has to be done individually.** b) **Students listen to podcasts/ interviews/radio or TV documentary on a topic and prepare a report countering or agreeing with the speakers. Write an 800 - 1000 words report and submit. A viva will be taken on the report.**

GUIDELINES

- **The objectives of the project work are to enable learners to :**
  - Check planning , preparation and presentation along with various language skills through research and writing.
  - Activate their listening skills and create more horizon for the creative skillset.

- **The expectations of the project work are:**
  - To develop understanding of correct pronunciation and intonation.
  - To check the students' grammatical structures and assess their communication skills so as to make the teacher understand their point of view effectively.

- **Scope of the project:**
  - Quality of content of the project.
  - Accuracy of information
  - Adherence to the specified timeline

  - Content in respect of (spellings, grammar, punctuation)
  - Clarity of thoughts and ideas
  - Creativity
  - Contributions by group members
  - Knowledge and experience gained

- **Expected Checklist:**
  - Cover page, with title of project, school details/details of students.
  - Statement of purpose/objectives/goals
  - Certificate of completion under the guidance of the teacher.
  - Students Action Plan for the completion of assigned tasks.
  - Materials such as scripts for the theatre/role play, questionnaires for interview, written assignments, essays, survey-reports and other material evidence of learning progress and academic accomplishment.
  - The 800-1000 words essay/Script/Report.
  - Student reflections.
  - If possible, Photographs and videos that capture the positive learning experiences of the students.
  - List of resources/bibliography.

- **Mode of presentation/submission of the Project:**
  - Each learner will present research work in the project file.
  - The questions shall be asked from the project file of the learner.
  - The practice of Listening and Speaking skills will be done throughout the academic session.
  - Viva of the project file will check the following parameters:
    1. Fluency – Cohesion, Coherence and Speed of Delivery.
    2. Pronunciation – Grammar and Vocabulary.
    3. Interactive Competence – Initiation and relevance to the topic.

PROJECT GUIDELINES (2025-2026)

SUBJECT	Biology
CLASS	XII
MARKS FOR PROJECT (MARKING SCHEME)	1. Clearly defined Aim 2. Knowledge Content/Research Work 3. Presentation Technique 4. Viva-voce Total 5 Marks
MODE OF SUBMISSION (TYPED/HANDWRITTEN)	HANDWRITTEN
GROUP/INDIVIDUAL	INDIVIDUAL
LIST OF EXPERIMENTS/TOPICS	Examples of investigatory projects in biology for class 12 students: 1. Investigating the effects of various organic and inorganic fertilizers on plant growth and development. 2. Studying the impact of different types of pollutants (such as heavy metals, pesticides, etc.) on the germination and growth of seeds. 3. Analyzing the effectiveness of natural remedies (herbal extracts, essential oils, etc.) in inhibiting the growth of bacteria or fungi. 4. Examining the relationship between soil composition and the diversity of microbial communities present in different soil samples. 5. Investigating the factors affecting the rate of enzyme activity, such as temperature, pH, and substrate concentration. 6. Studying the genetic diversity of a particular plant species using molecular techniques like DNA fingerprinting or PCR. 7. Exploring the effects of electromagnetic radiation (e.g., from mobile phones, Wi-Fi routers) on the growth and development of plants. 8. Investigating the potential antimicrobial properties of plant extracts against common human pathogens. 9. Analyzing the impact of different types of light (e.g., natural sunlight, LED light, fluorescent light) on the growth and development of indoor plants. 10. Studying the physiological responses of plants to environmental stressors, such as drought, salinity, or heavy metal contamination. 11. Studying the effect of different iron supplementation methods on hemoglobin levels and iron stores in individuals with iron deficiency anemia. 12. Analyzing the impact of various dietary supplements (e.g., vitamin B12, folic acid) on red blood cell production and overall hematological health.

	13. Examining the association between blood lipid profiles (e.g., cholesterol levels) and the risk of developing hematological disorders, such as thrombosis or Coronary Heart Disease
	14. Studying the correlation between blood glucose levels and hematological parameters in diabetic patients.
	15. Analyzing the hematological changes associated with chronic diseases, such as kidney disease, liver disease, or autoimmune disorders.
	16. Studying the relationship between blood type (ABO and Rh) and susceptibility to certain hematological disorders or diseases.
	17. Analyzing the hematological effects of environmental factors, such as air pollution or exposure to heavy metals, in urban populations.
	• Any other topic

GUIDELINES

The objectives of the project work are to enable learners to:
• probe deeper into theoretical concepts learnt in classes XI and XII
• analyse and evaluate real-world biological issues using theoretical constructs and arguments
• demonstrate the application of theoretical concepts in real world problems
• promote scientific method of problem solving.
• develop the communication skills to argue logically
The expectations of the project work are that:
• learners will complete only ONE project in each academic session
• project should be of 2,500-3,000 words (excluding diagrams & graphs), preferably hand-written
• it will be an independent, self-directed piece of study
Scope of the project:

Key guidelines to follow while documenting the investigatory project

1. **INDEX :Maintain index, and neatly organized content with page numbers**
2. **Title Selection Choose a concise and descriptive title that reflects the purpose of your investigation.**

3. **Introduction: Provide a clear introduction to the topic, including the background information, significance of the study, and objectives of the project.**

4. **Review of Literature: Include a brief review of relevant literature and studies related to your topic to show understanding of existing knowledge.**

5. **Hypothesis- State a clear hypothesis or research question that you aim to investigate through your project.**

6. **Materials and Methods:** Describe the materials (equipment, chemicals, biological specimens) and methods used in your experiment. Include detailed procedures in a step wise manner supported by pictures at each critical step

7. **Data Collection and Analysis-** Record all data obtained during the experiment systematically. Use appropriate tables, graphs, and charts to present your findings.

8. **Results** Present the results of your experiment objectively, including any statistical analyses performed.

9 **Discussion -** Interpret your results and discuss their implications. Compare your findings with existing literature and address any limitations or challenges encountered during the project.

10. **Conclusion-** Summarize the key findings of your investigation and how they relate to your hypothesis or research question. Give suggestions for further studies that can investigate other aspects not covered by this project

11. **Bibliography :** Cite all sources of information used in your project, including books, journals, and websites links

12. **Acknowledge** any individuals or institutions that provided assistance or resources for your project.

It's important to conduct your investigation ethically and ensure that your project is well-documented and scientifically sound.

Expected Checklist:
• Introduction of topic/title
• Identifying the causes, consequences and/or remedies
• Various stakeholders and effect on each of them
• Advantages and disadvantages of situations or issues identified
• Short-term and long-term implications of strategies suggested in the course of research
• Validity, reliability, appropriateness and relevance of data used for research work and for presentation in the project file
• Presentation and writing that is succinct and coherent in project file
• Citation of the materials referred to, in the file in footnotes, resources section, bibliography etc.

Mode of presentation/submission of the Project:
At the end of the stipulated term, each learner will present the research work in the Project File to the External and Internal examiner who will judge the project work on parameters given above .

PROJECT GUIDELINES (2025-2026)

SUBJECT	ECONOMICS
CLASS	XII
MARKS FOR PROJECT (MARKING SCHEME)	1. Relevance of the topic 3 marks 2. Knowledge Content/Research Work 6 marks 3. Presentation Technique 3 marks 4. Viva-voce 8 marks Total 20 Marks
MODE OF SUBMISSION (TYPED/HANDWRITTEN)	HANDWRITTEN
GROUP/INDIVIDUAL	INDIVIDUAL
LIST OF EXPERIMENTS/TOPICS	• Micro and Small Scale Industries • Food Supply Channel in India • Contemporary Employment situation in India • Disinvestment policy of the government • Goods and Services Tax Act and its Impact on GDP • Health Expenditure (of any state) • Human Development Index • Inclusive Growth Strategy • Self-help group • Trends in Credit availability in India • Monetary Policy Committee and its functions • Role of RBI in Control of Credit • Government Budget & its Components • Trends in budgetary condition of India • Exchange Rate determination – Methods and Techniques • Currency War – reasons and repercussions • Livestock – Backbone of Rural India • Alternate fuel – types and importance • Sarva Shiksha Abhiyan – Cost Ratio Benefits • Golden Quadrilateral- Cost ratio benefit • Minimum Support Prices • Relation between Stock Price Index and Economic Health of a Nation • Waste Management in India – Need of the hour • Minimum Wage Rate – Approach and Application • Digital India- Step towards the future • Rain Water Harvesting – A solution to water crisis • Vertical Farming – An alternate way • Silk Route- Revival of the past • Make in India – The way ahead • Bumper Production- Boon or Bane for the farmer • Rise of Concrete Jungle- Trend Analysis • Organic Farming – Back to the Nature

	• Aatmanirbhar Bharat • e-Rupee (e- ₹) • Sri Lanka's Economic Crisis • Sustainable Development Goals (SDG's) • Environmental Crisis • Comparative Study of Economies (Maximum three economies) • New Education Policy (NEP) 2020: A Promise for a New Education System • G-20: Inclusive and Action Oriented • Amrit Kaal: Empowered and Inclusive Economy • Cashless Economy • Any other newspaper article and its evaluation on basis of economic principles • Any other topic

GUIDELINES

The objectives of the project work are to enable learners to:

• probe deeper into theoretical concepts learnt in classes XI and XII

• analyse and evaluate real-world economic scenarios using theoretical constructs and arguments

• demonstrate the learning of economic theory

• follow up aspects of economics in which learners have interest

• develop the communication skills to argue logically

The expectations of the project work are that:

• learners will complete only ONE project in each academic session

• project should be of 3,500-4,000 words (excluding diagrams & graphs), preferably hand-written

• it will be an independent, self-directed piece of study

Scope of the project:

Learners may work upon the following lines as a suggested flow chart:

- Choose a title/topic
- Collection of the research material/data
- Organization of material/data
- Present material/data
- Analysing the material/data for conclusion
- Draw the relevant conclusion
- Presentation of the Project Work

Expected Checklist:

• Introduction of topic/title

• Identifying the causes, consequences and/or remedies

• Various stakeholders and effect on each of them

• Advantages and disadvantages of situations or issues identified

• Short-term and long-term implications of economic strategies suggested in the course of research

• Validity, reliability, appropriateness and relevance of data used for research work and for presentation in the project file

• Presentation and writing that is succinct and coherent in project file

• Citation of the materials referred to, in the file in footnotes, resources section, bibliography etc.

Mode of presentation/submission of the Project:

At the end of the stipulated term, each learner will present the research work in the Project File to the External and Internal examiner. The questions should be asked from the Research Work/ Project File of the learner. The Internal Examiner should ensure that the study submitted by the learner is his/her own original work. In case of any doubt, authenticity should be checked and verified.

PROJECT GUIDELINES (2025-2026)

SUBJECT	Mathematics
CLASS	XII
MARKS FOR PROJECT (MARKING SCHEME)	10 Mathematical model. (Presentation of content – 2 marks) Notebook. (Assignment Work : Accuracy -2 marks) Ppt/movie. (Creativity – 2, Originality - 2 , Oral Presentation-2)
MODE OF SUBMISSION (TYPED/HANDWRITTEN)	Handwritten Digital
GROUP/INDIVIDUAL	Individual
LIST OF EXPERIMENTS/TOPICS	**List of Activities** 1. **Explore Geogebra app. Please find attached link to learn the basics of geogebra.** **https://www.youtube.com/live/wmTtfgTvvDo?feature=share.** **Create your id in the web browser (Geogebra) and prepare a project on any of the following topics.** • **Inverse Trigonometric Functions** • **Continuity and Differentiablity** 2. **Prepare a mathematical model on any one of the following topics:** (1) Role of math in the cure of cancer (2) Role of math in setting up a business and maximizing the profit to the company with minimum investment. (3) Role of mathematics in the automobile industry.

GUIDELINES

The objectives of the project work are to enable learners to:

1. Determine Domains and Ranges: Students should be able to identify the domain and range restrictions of inverse trigonometric functions to ensure they are single valued and well defined.
2. Solving equations involving various trigonometric functions requiring careful manipulation and understanding of trigonometric identities.
3. Solving problems students should be available to apply the concepts of quantity and differentiability to solve problems in calculus including Optimisation curve sketching and related rates problem.

4. Exploring applications: Understanding how quantity and differentiability relate to Real world application such as physics engineering economics and Biology and people student understanding of these concepts.
5. Students should develop problem solving skills through exercise and applications that involve applying the concepts of quantity and differentiated to various situations and scenarios.

The expectations of the project work are:
1. **Understanding of concepts**
2. **Problem solving ability**
3. **Accuracy.**
4. **Creativity**
5. **Critical Thinking**

Scope of the project:
1. **It helps students explore real world applications or connection of the topics with other disciplines.**
2. **The project addresses the varied interest of Students and allows creativity, independent thinking and collaborative learning.**

Expected Checklist:
1. **Originality.**
2. **Creativity**
3. **Problem solving.**
4. **Computational Skills**

Mode of presentation/submission of the Project:
1. PowerPoint Presentation or movie.
2. Mathematical model
3. Notebook

SUBJECT	Chemistry
CLASS	XII
MARKS FOR PROJECT (MARKING SCHEME)	1. Clearly defined Aim 2. Knowledge Content/Research Work 3. Presentation Technique 4. Viva-voce Total : 5 Marks
MODE OF SUBMISSION (TYPED/HANDWRITTEN)	HANDWRTTEN
GROUP/INDIVIDUAL	INDIVIDUAL
LIST OF EXPERIMENTS/TOPICS	1. To assess the feasibility and sustainability of biodiesel production and its potential as an alternative fuel source. 2. To analyze the composition and nutrient content of different commercial fertilizers. using methods like titration and spectrophotometry. Compare the results to label claims and recommend the most effective fertilizers. 3. To analyze the chemical composition of honey and its potential health benefits. 4. To determine the stoichiometry of a metal-ligand complex using Job's method . 5. To synthesize silver nanoparticles using a green method and characterize their size and stability using UV-visible spectroscopy. 6. To quantitatively determine the concentration of calcium in milk samples using titration methods. 7. To produce biodiesel from vegetable oil and assess its quality and efficiency as an alternative fuel. 8. To investigate the effectiveness of a photocatalyst in degrading organic dyes under UV light and understand the mechanism of photocatalytic degradation. 9. Formulation of cosmetic products like face serums, soaps, cold cream, and vanishing cream and itar etc 10. Study of the presence of oxalate ions in guava fruit at different stages of ripening. 11. Study of quantity of casein present in different samples of milk.

	12. Preparation of soybean milk and its comparison with the natural milk with respect to curd formation, effect of temperature, etc.
	13. Study of the effect of Potassium Bisulphate as food preservative under various conditions (temperature, concentration, time, etc.)
	14. Study of digestion of starch by salivary amylase and effect of pH and temperature on it.
	15. Comparative study of the rate of fermentation of following materials: wheat flour, gram flour, potato juice, carrot juice, etc.
	16. Extraction of essential oils present in Saunf (aniseed), Ajwain (carum), Illaichi (cardamom). •
	17. Study of common food adulterants in fat, oil, butter, sugar, turmeric power, chilli powder and pepper and Make an app on to test the presence of adulterants using house hold items.
	18. To investigate the effects of different dehydration methods on the nutritional content and quality of apples.
	• Any other topic based on concepts of Chemistry

GUIDELINES

The objectives of the project work are to enable learners to:
- Engage in practical exploration and investigation of a specific area in Chemistry.
- Enhance understanding of a chosen topic through experimentation, analysis, and documentation.
- Develop problem-solving, critical thinking, and research skills by formulating hypotheses and drawing conclusions.
- Encourage curiosity and interest in Chemistry through a hands-on approach**.**

Expectations of the Project:
- learners will complete only ONE project in each academic session.
- Project should be of 2,000-3,000 words (excluding diagrams & graphs),
- Project should be hand-written.

Scope of the Project:

- Projects can cover various topics in Chemistry such as Electrochemistry, Chemical Kinetics, Cosmetic Chemistry, and more.
- The project may involve designing experiments, simulations, theoretical models , making apps to explore a specific concept.

The project may be a solution of existing problems or an innovative application of any scientific principle.

Key guidelines to follow while documenting the investigatory project:

1. **INDEX :**Maintain index, and neatly organized content with page numbers**.**
2. **Title Selection :** Choose a concise and descriptive title that reflects the purpose of your investigation.
3. **Introduction:** Provide a clear introduction to the topic, including the background information, significance of the study, and objectives of the project.
4. **Review of Literature**: Include a brief review of relevant literature and studies related to your topic to show understanding of existing knowledge.
5. **Hypothesis-** State a clear hypothesis or research question that you aim to investigate through your project.
6. **Materials and Methods:** Describe the materials (equipment, chemicals, biological specimens) and methods used in your experiment. Include detailed procedures in a step wise manner supported by pictures at each critical step.
7. **Data Collection and Analysis**- Record all data obtained during the experiment systematically. Use appropriate tables, graphs, and charts to present your findings**.**
8. **Result:** Present the results of your experiment objectively, including any statistical analyses performed.
9 **Discussion -** Interpret your results and discuss their implications. Compare your findings with existing literature and address any limitations or challenges encountered during the project.
10. **Conclusion-** Summarize the key findings of your investigation and how they relate to your hypothesis or research question. Give suggestions for further studies that can investigate other aspects not covered by this project.
11. **Bibliography :** Cite all sources of information used in your project, including books, journals, and websites links.
12. **Acknowledge any individuals or institutions that provided assistance or resources for your project.**

NOTE: It is important to conduct your investigation ethically and ensure that your project is well-documented and scientifically sound for presentation in the project file

Mode of Presentation/Submission of the Project:
At the end of the stipulated term, each learner will present the research work(Hand Written) in the Project File to the External and Internal examiner who will judge the project work on parameters given above .This may be supported by:

1. Digital Presentation: A digital format such as a PowerPoint/App / or Google Slides presentation that covers the project's objectives, methodology etc . Include visual aids and interactive elements as appropriate**.**

2. Demonstration: If the project involves an experiment or model or the sample of the cosmetics made etc , consider a live demonstration to illustrate the findings.

Expected Checklist:
• Introduction of topic/title
• Identifying the causes, consequences
• Various stakeholders and effect on each of them
• Advantages and disadvantages of situations or issues identified
• Short-term and long-term implications of strategies suggested during research
• Validity, reliability, appropriateness, and relevance of data used for research work and for presentation in the project file
• Presentation and writing that is succinct and coherent in project file
• Citation of the materials referred to, in the file in footnotes, resources section, bibliography etc.

PRACTICAL/PROJECT GUIDELINES (2025-2026)

SUBJECT	PHYSICAL EDUCATION
CLASS	XII
MARKS FOR PROJECT (MARKING SCHEME)	1. Physical Fitness Test: SAI Khelo India Test, Brockport Physical Fitness Test (BPFT)* - 6 MARK 2. Proficiency in Games and Sports (Skill of any one IOA recognized Sport/Game of Choice)- 7 MARK 3. Yogic Practices- 7 MARK 4. Record File – 5 MARK **4.** Viva-voce - 5 MARK **Total 20 MARKS**
MODE OF SUBMISSION (TYPED/HANDWRITTEN)	HANDWRITTEN
GROUP/INDIVIDUAL	INDIVIDUAL
RECORD FILE	Record File shall include: ➢ **Practical-1:** Fitness tests administration. (SAI Khelo India Test) ➢ **Practical-2:** Procedure for Asanas, Benefits & Contraindication for any two Asanas for each lifestyle disease. ➢ **Practical-3: Any** one IOA recognized Sport/Game of choice. Labelled diagram of Field & Equipment. Also, mention its Rules, Terminologies & Skills.

GUIDELINES

The objectives of the project work are to enable learners to:

1. Apply Theoretical Knowledge: Utilize theoretical concepts learned in class to real-life scenarios, enhancing understanding and application.
2. Develop Practical Skills: Engage in activities that foster the development of physical skills such as coordination, balance, agility, and strength.
3. Promote Health and Fitness: Encourage a healthy lifestyle through regular physical activity, promoting fitness, and preventing sedentary behavior.
4. Enhance Teamwork and Collaboration: Foster teamwork and collaboration through group projects, promoting communication and cooperation among peers.
5. Critical Thinking and Problem Solving: Encourage critical thinking and problem-solving skills by analyzing situations and finding solutions related to physical activity and sports.

The expectations of the project work are that:

1. Demonstration of Learning: Projects are expected to reflect understanding and application of concepts taught in physical education classes.
2. Quality of Work: Projects should be well-planned, organized, and executed, demonstrating attention to detail and effort.
3. Engagement and Participation: Students are expected to actively engage in project activities, demonstrating enthusiasm and dedication.
4. Adherence to Deadlines: Projects should be completed within the specified timeframe, demonstrating time management and responsibility.
5. Creativity and Innovation: Expectations include the demonstration of creativity and innovation in project design and implementation.

Scope of the project:

1. Fitness Assessment and Planning: Conduct fitness assessments for individuals or groups, design personalized fitness plans, and track progress over time.
2. Sports Performance Analysis: Analyze the performance of specific sports techniques or strategies, identifying areas for improvement and implementing training programs.
3. Health Education Campaign: Develop and implement a health education campaign focusing on topics such as nutrition, injury prevention, or mental well-being within the context of sports and physical activity.
4. Community Engagement and Outreach: Organize sports events, workshops, or fitness classes for the local community, promoting the importance of physical activity and healthy living.
5. Research Project: Conduct research on a topic related to sports science, exercise physiology, biomechanics, or sports psychology, presenting findings in a comprehensive report or presentation.

Expected Checklist

1. **Project Title and Introduction:** Clear and concise title that reflects the project's focus.Introduction providing background information and objectives of the project.
2. **Literature Review:** Review of relevant literature, theories, and concepts related to the chosen topic. Citations and references from credible sources supporting the project's rationale.
3. **Methodology:** Description of the research methodology or approach used in the project. Explanation of data collection methods, tools, and procedures.
4. **Data Analysis:** Presentation of data collected, including tables, charts, graphs, or diagrams. Analysis of findings with clear interpretation and discussion of results.
5. **Discussion and Conclusion:** Discussion of key findings in relation to the project's objectives. Conclusion summarizing the main findings and their implications.

Mode of presentation/submission of the Project:

1. **Written Report:** Format: Typed document following specified formatting guidelines (e.g., font size, spacing, margins). Content: Includes sections such as introduction, literature review, methodology, data analysis, discussion, conclusion, and references. Submission: Typically submitted in printed form or electronically via email or an online learning platform.
2. **Presentation Slides:** Format: PowerPoint or similar presentation software. Content: Concise slides summarizing key aspects of the project, including objectives, methodology, findings, and conclusions. Delivery: Presented in front of the class or to the instructor during a scheduled presentation session.
3. **Poster Presentation:** Format: Visual poster summarizing the project's key components. Content: Includes sections such as title, introduction, methodology, results, discussion, conclusion, and references. Delivery: Presented during a poster presentation session where students explain their projects to viewers.
4. **Digital Portfolio:** Format: Online platform or website showcasing the project's content, including text, images, videos, and other multimedia elements. Content: Organized sections covering various aspects of the project, similar to a written report. Delivery: Accessed and reviewed by the instructor or peers online.
5. **Video Presentation:** Format: Recorded video presentation featuring the student discussing key aspects of the project. Content: Similar to a traditional presentation, but delivered in a video format. Delivery: Uploaded to an online platform or shared with the instructor via email.

PROJECT GUIDELINES (2025-2026)

SUBJECT	COMPUTER SC
CLASS	XII
MARKS FOR PROJECT (MARKING SCHEME)	10 MARKS PROJECT- 5 MARKS ASSIGNMENT- 5 MARKS
MODE OF SUBMISSION (TYPED/HANDWRITTEN)	PRINTOUT FOR PROJECT HANDWRITTEN FOR ASSIGNMENT
GROUP/INDIVIDUAL	INDIVIDUAL
LIST OF EXPERIMENTS/TOPICS	**1. PROJECT- Data File Handling- Binary Files** Choose any one of the topic given below and prepare Project using Binary Files. Submit the code and output of the project **2. ASSIGNMENT- Data File Handling- Text Files** Complete the assignment based on text files in the theory register

1. PROJECT GUIDELINES

➢ **The objectives of the project work are to enable learners to:**
- Gain hands-on experience with Python file handling.
- Identify and solve real-world problems using programming skills.
- Develop skills in self-directed learning and problem-solving.
- Understand the importance of avoiding plagiarism and respecting copyright issues in their work

➢ **The expectations of the project work are that:**
1. Understanding of concepts
2. Problem solving ability
3. Accuracy of code
4. Critical Thinking

➢ **Scope of the project:**
- Projects involve creating tangible and useful applications using Python.
- Applications may include but are not limited to:
  - Handling raw data and generating invoices for businesses.
  - Developing user-friendly software.
- Use of Python libraries is encouraged to enhance application functionality.
- Projects should address real-world problems and provide practical solutions.
- Emphasis on creativity and innovation in project development

➢ **Expected Checklist:**
1) **Files and Functions created**: Describe the name of py file and functions inside each file
2) **Code:-** Take screenshot/ copypaste of code
3) **Output:-** Take screenshot of the output of each option.

➢ **Mode of presentation/submission of the Project:**
Printout for the Project work
Notebook for assignment work

2. ASSIGNMENT BASED ON TEXT FILES

TEXT FILE (Programs) - Reading text file character by character

Note: First create the text file with the following data.

Python is interactive language. It is case sensitive language. It makes the difference between uppercase and lowercase letters. It is official language of google

1. Write a user-defined function named find_size() that will return the size of a text file named sample.txt.
2. Write a function to count and display the number of blanks present in a text file named "PARA.TXT
3. Write a Python function to read a text file 'BOOKS.TXT'and display number of lowercase characters, uppercase characters, and digits present in the text file.
4. Write a Python function to read a text file 'STORY.TXT'and display number of special characters present in the text file.
5. Write a python function VOWELCOUNT() to read the file NOTES.TXT to count the number of vowels in the file.
    Example: If the file content is as follows:

Updated information is simplified by official websites.

    The VOWELCOUNT() function should display the output as: No of Vowels are: 20
6. Write a function NDCount() in PYTHON, which should read each character of a text file SAMPLE.TXT, should count and display the occurrences of alphabets N and D (including small cases n and d too). Example: If the file content is as follows:

   Updated information Is simplified by official websites.

   The NDCount() function should display the output as: N:1 D:3

Reading text file WORD BY WORD

7. Write a user defined function to count the no of words from the file named book.txt
8. Write a function in PYTHON to count the number of words starting with alphabet 'A' or 'a' present in a text file "LINES.TXT".

   Example: If the file "LINES.TXT" contains the following lines,
   A boy is playing there. There is a playground.
   An aeroplane is in the sky. Are you getting it?
   The function should display the output as 5.

9. Write a UDF to count the no. of words ending with letter "e" or "E" from the file named "book.txt"
   Example: If the file "BOOK.TXT" contains the following lines,
   A boy is playing there. There is a playground.
   An AEROPLANE is in the sky. Are you getting it?
   The function should display the output as 2

10. Write a function in PYTHON that counts the number of "Me" or "My" words present in a text file "DIARY.TXT". If the "DIARY.TXT" contents are as follows:

    My first book was Me and My Family. It gave me chance to be Known to the world.

    The output of the function should be: Count of Me/My in file: 4

11. Write a function CountHisHer() in PYTHON which reads the contents of a text file "Gender.txt" which counts the words His and Her (not case sensitive) present in the file.
    For, example, if the file contains:
    Pankaj has gone to his friend's house. His friend's name is Ravya. Her house is 12KM from here
    The function should display the output:

       Count of His: 2   Count of Her: 1

12. Write function definition for SUCCESS( ) in PYTHON to read the content of a text file STORY.TXT, count the presence of word SUCCESS and display the number of occurrence of this word.

  Note : The word SUCCESS should be an independent word & Ignore type cases (i.e. lower/upper case)
  Example :If the contents of story.txt is as follows:
  Success shows others that we can do it. It is possible to achieve success with hard work. Lot of money does not mean SUCCESS

  The function SUCCESS( ) should display: 3

13. Write the function definition for WORD4CHAR() in PYTHON to read the content of a text file FUN.TXT, and display all those words, which have four characters in it.

  Example: If the content of the file Fun.TXT is as follows:

  When I was a small child, I used to play in the garden with my grand mom. Those days were amazingly fun filed and I remember all the moments of that time

  The function WORD4CHAR() should display the following:

  When used play with days were that time

14. Write a Python Program to read a file and Capitalize the First Letter of Every Word in the File.
15. Write a Python function RevTxt() to read a text file "Story.txt" and print only words starting with ' I ' in reverse order.
  Example: If content of text file is: INDIA IS MY COUNTRY.
  Output should be: **AIDNI SI** MY COUNTRY

Reading text file LINE BY LINE

1. Write a UDF to count the no of lines from the file named book.txt
2. Write a UDF to count the no of lines ending with letter e from the file named "book.txt"
3. Write a python program to display last 2 lines of a text file.
4. Write a function in PYTHON to read the contents of a text file "Places.Txt" and display all those lines on screen which are either starting with 'P' or with 'S'.
5. Write a function to display the lines which are having lines starting with vowel from "NOTES.TXT".
6. Write a function that will display those lines which have more than 5 words.

PROJECT GUIDELINES (2025-2026)

SUBJECT	Artificial Intelligence
CLASS	XII
MARKS FOR PROJECT (MARKING SCHEME)	10 marks (**Project file-7 marks** (printout of error free and indented code with correct output & comments included), **Viva- 3marks**)
MODE OF SUBMISSION (TYPED/ HANDWRITTEN)	Typed
GROUP/ INDIVIDUAL	Group

LIST OF EXPERIMENTS/ TOPICS	**TOPIC: Rainfall Prediction Using Weather Data of Jaipur**
	 You are provided with a cleaned weather dataset of Jaipur city named `JaipurCleanWeather.csv`, which contains multiple meteorological parameters such as temperature, humidity, wind speed, and atmospheric pressure.
	 Your objective is to build a machine learning model that can accurately predict the amount of rainfall based on these weather features.
	 Using the steps of the AI Project Cycle, perform the following tasks in Google Colaboratory:
	
	 1. **Problem Sco ping**
	     o Clearly define the problem using the **4Ws Canvas** (What, Why, Where, Who).
	     o Explain the real-world significance of predicting rainfall in a city like Jaipur.
	 2. **Data Acquisition**
	     o Load the dataset using Pandas.
	     o Display the structure and basic summary of the dataset (first few rows, shape, and data types).
	 3. **Data Exploration**
	     o Check for and handle any missing or irrelevant data.
	     o Generate appropriate visualizations (like histograms, correlation heatmap) to understand relationships between features.
	     o Identify the target feature and suitable predictor variables.
	 4. **Modeling**
	     o Split the dataset into training and testing sets.
	     o Train a suitable regression model (e.g., Linear Regression) to predict rainfall.
	     o Use the trained model to make predictions on the test data.
	 5. **Evaluation**
	     o Evaluate the performance of the model using appropriate metrics such as **Mean Squared Error (MSE)** and **R^2 Score**.
	     o Create a visualization comparing actual vs. predicted rainfall values.
	 6. **Conclusion**
	     o Summarize your findings.
	     o Mention possible improvements or next steps that could enhance model accuracy.

GUIDELINES

The objectives of the project work are to enable learners to:

1. Apply the stages of the AI Project Cycle to a real-world dataset.
2. Identify and define a problem using the 4Ws Canvas.
3. Explore and clean data using Pandas and visualize insights using matplotlib and seaborn.
4. Create machine learning models (e.g., Linear Regression) to build a prediction system.
5. Evaluate the performance of the model using standard metrics.
6. Develop a responsible and ethical approach to data-driven decision making.
7. Demonstrate collaborative problem-solving and critical thinking skills using AI tools.

The expectations of the project work are that:
1. **Completion of Assigned Tasks:** Students are expected to complete all assigned tasks within the given timeframe.
2. **Understanding of Concepts:** Demonstrate understanding of Python programming concepts covered in class.
3. **Quality of Code:** Write clean, well-structured code with appropriate comments and documentation where necessary.
4. **Problem-Solving Skills:** Apply logical thinking and problem-solving skills to tackle different programming challenges.
5. **Presentation:** Prepare to present their solutions and findings effectively, showcasing their understanding of the concepts and their ability to communicate technical information.

Scope of the project:
1. **Machine Learning Basics:** The project covers fundamental Machine Learning concepts including data handling and visualization, model training and evaluation, application of AI in real-world scenarios.
2. **Problem Solving:** Students will solve a variety of problems ranging from simple arithmetic calculations to more complex tasks involving loops, conditionals, and functions.
3. **Hands-on Practice:** The project provides ample opportunities for hands-on practice through coding exercises and challenges.
4. **Concept Reinforcement:** Reinforce concepts learned in class through practical application and problem-solving tasks.
5. **Introduction to Project Management:** Introduce students to the basics of project management, including planning, execution, and presentation of their solutions.

Expected Checklist:

1. Problem Statement & Objective
2. Application of 4Ws Canvas
3. Description of Dataset and its Features
4. Data Cleaning and Exploration Visuals
5. Model Building and Prediction Results
6. Evaluation Metrics (MSE, R^2 Score)
7. Interpretation of Results
8. Conclusion and Future Scope
9. Bibliography/References

Mode of presentation/submission of the Project:
1. Submit your work in the form of a **Google Colaboratory (.ipynb) notebook** with all code, outputs, and comments.
2. Include a **typed summary report** (optional PDF or Word document) explaining each stage in simple language.
3. Ensure neat formatting, appropriate headings, and relevant screenshots if required.

4. **Share the Google Colab link with editing/view access** as directed by your subject teacher.

ASSIGNMENT - Practical File Programs (Individual Work)

S.No.	Topic
1	Create a Pandas DataFrame to store details of 5 employees (EmployeeName, Age) using a dictionary and sequence data type lists. • Display the DataFrame. • Add a new column of Employee Designation to the DataFrame. • Add record of 5 more New employees. Donot assign designation to the new employees. • Display first 5 and last 5 records. • Identify missing values
2	Import data from a USA_HOUSING.CSV file into a Pandas DataFrame. • Display basic information about the number of rows and datatype of each column. • Display the column names and index • Display the dimensions of the dataframe. • Perform basic statistical analysis. • Handle missing values by filling or removing them.
3	Implement train-test split for Linear Regression using Python. • Train a model using given data. • Evaluate performance using Mean Squared Error (MSE) and Root Mean Squared Error (RMSE).
4	Write Python code to evaluate a machine learning model. o Calculate Precision, Recall, F1-score, and Accuracy from a given confusion matrix.
5	Load and visualize the Iris dataset using Orange Data Mining. o Use scatter plots and classification widgets.
6	Perform classification using Orange Data Mining o Train a classification model and evaluate its performance
7	Perform Natural Language Processing with Orange. o Use Word Cloud to visualize word frequencies.