LearnifyAI

BITS ZC4999T: Capstone Project

MID REPORT

By

Student Name: Tushar Sharma

BITS ID: 202117b3877

Capstone Project work carried out at

HCLTECH Ltd., Noida

BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE

PILANI (RAJASTHAN)

December 2025.

Annexure 5G: Format for Mid semester progress evaluation Sheet

BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI

WORK-INTEGRATED LEARNING PROGRAMMES DIVISION

BITS ZC499T : Capstone Project Mid-Semester Progress Evaluation Sheet

ID No.	**:**	**202117b3877**
NAME OF THE STUDENT	**:**	**Tushar Sharma**
EMAIL ADDRESS	**:**	**202117b3877@wilp.bits-pilani.ac.in**
STUDENT'S EMPLOYING ORGANIZATION & LOCATION	**:**	**HCLTECH Ltd., Noida**
MENTOR'S NAME	**:**	**Vaishnani Dhruvkumar**
Mentor's Desgnation	**:**	**Senior Technical Lead**
MENTOR'S EMPLOYING (ORGANIZATION & LOCATION)	**:**	**HCLTECH Ltd., Pune**
MENTOR'S EMAIL ADDRESS	**:**	**vaishnanidhru.jiten@hcltech.com**
CAPSTONE PROJECT TITLE	**:**	**LearnifyAI**

1. Executive Summary:

LearnifyAI is a web-based application designed to make learning and assessment easier by converting large PDF or Word documents into interactive question-and-answer sets. Users can upload study materials, research papers, or books, and the system extracts content and generates questions using AI. The platform supports role-based customization (Student, College Student, Teacher, Professor, Interviewer, Interviewee) and allows users to select difficulty levels (Easy, Medium, Hard) or set percentage distributions. It also supports MCQs and subjective questions, giving flexibility to users.

Currently, the portal frontend and backend are developed, and AI integration is in progress for generating questions based on filters like role, difficulty, and question type.

2. Project Methodology:

The project follows an Agile Iterative Model:

- Development is divided into phases for frontend, backend, and AI integration.
- Each phase includes design, implementation, and testing.
- Regular feedback from mentors is incorporated to improve functionality.

3. Details of Work Done till Date:

The development of LearnifyAI has progressed through multiple phases:

- **Phase 1 – Project Setup and Planning**

  The initial phase involved defining the project scope, objectives, and architecture. The basic structure for the frontend (ReactJS) and backend (Python) was created.
- **Phase 2 – Frontend and Backend Development**

  A responsive web interface was designed using ReactJS, and backend services were implemented to handle file uploads and communication between components.

- **Phase 3 – File Upload and Content Display**
  The portal now allows users to upload PDF or Word documents. The system successfully extracts and displays the content on the web page for user review.
- **Phase 4 – Role Selection Feature**
  A dropdown menu was added to enable users to select their role (Student, Teacher, Interviewer, Interviewee), ensuring role-based customization for question generation.
- **Phase 5 – Difficulty Level Selection**
  Users can choose question difficulty levels (Easy, Medium, Hard) or set percentage-based distributions for mixed difficulty.
- **Phase 6 – Question Type Option**
  A toggle feature was implemented to allow users to select the type of questions they want—Multiple Choice Questions (MCQs), Subjective questions, True/False or Fill in the blanks.

Currently, work is in progress on **Phase 7 – Question Generation Logic**, which involves integrating AI to generate questions based on uploaded content, selected role, difficulty level, and question type.

4. Tools & Technology Used:

- ReactJS: Frontend framework for building the interactive user interface.
- Material-UI: React component library for modern, responsive UI elements.
- Python: For backend processing and AI integration.
- PyMuPDF: Library for extracting text from PDF files on the backend.
- Python-docx: Library for extracting text from Word (.docx) files on the backend.
- AI Cafe: Provides AI-powered questions and answer generation.

5. Scope of Work Remaining:

- Complete question generation logic with role and difficulty filters.
- Perform UI enhancements for better user experience.

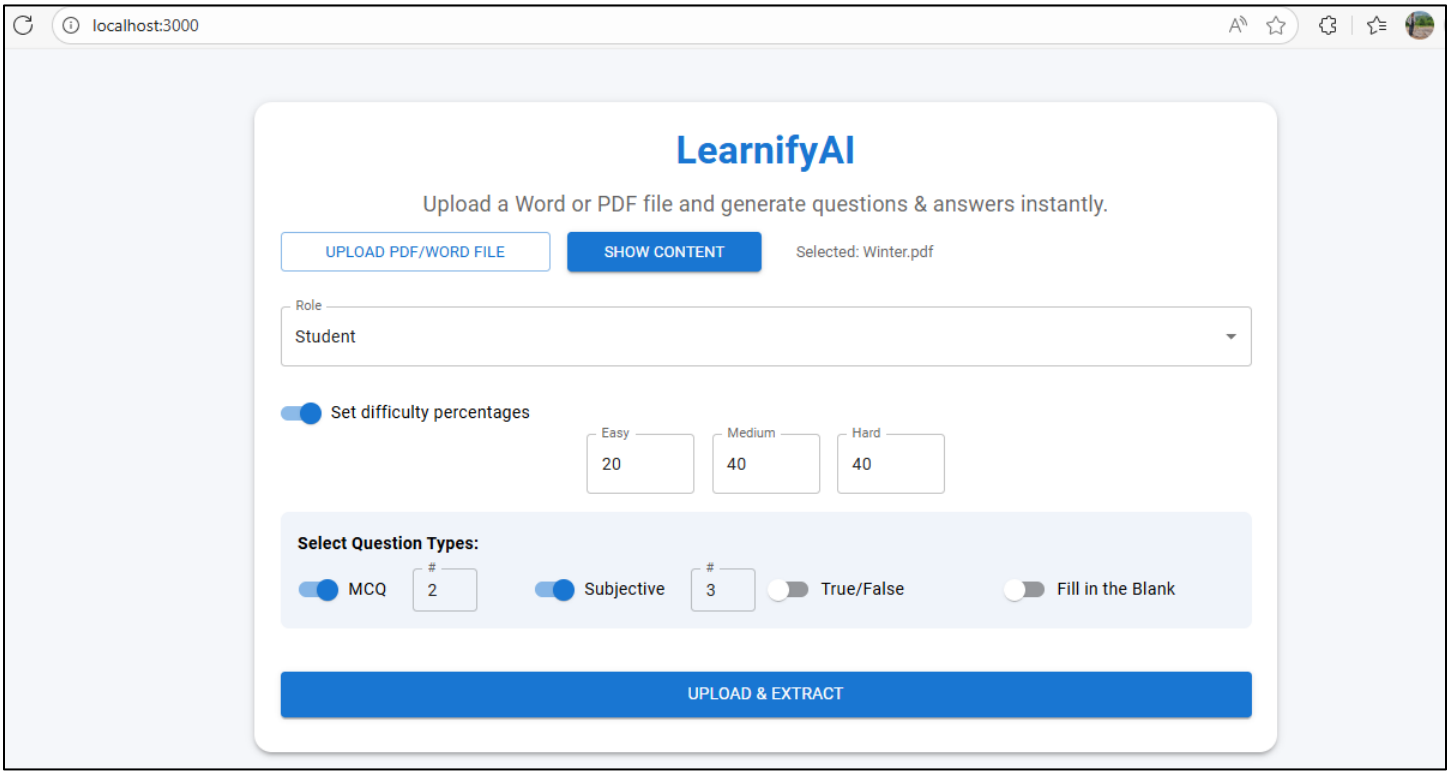
- Add input validations on the frontend to ensure correct file formats, valid percentage distribution for difficulty levels, and proper role selection.
- Conduct testing and deploy the application.
- Prepare final documentation and presentation.

6. Plan of Work Yet to be done:

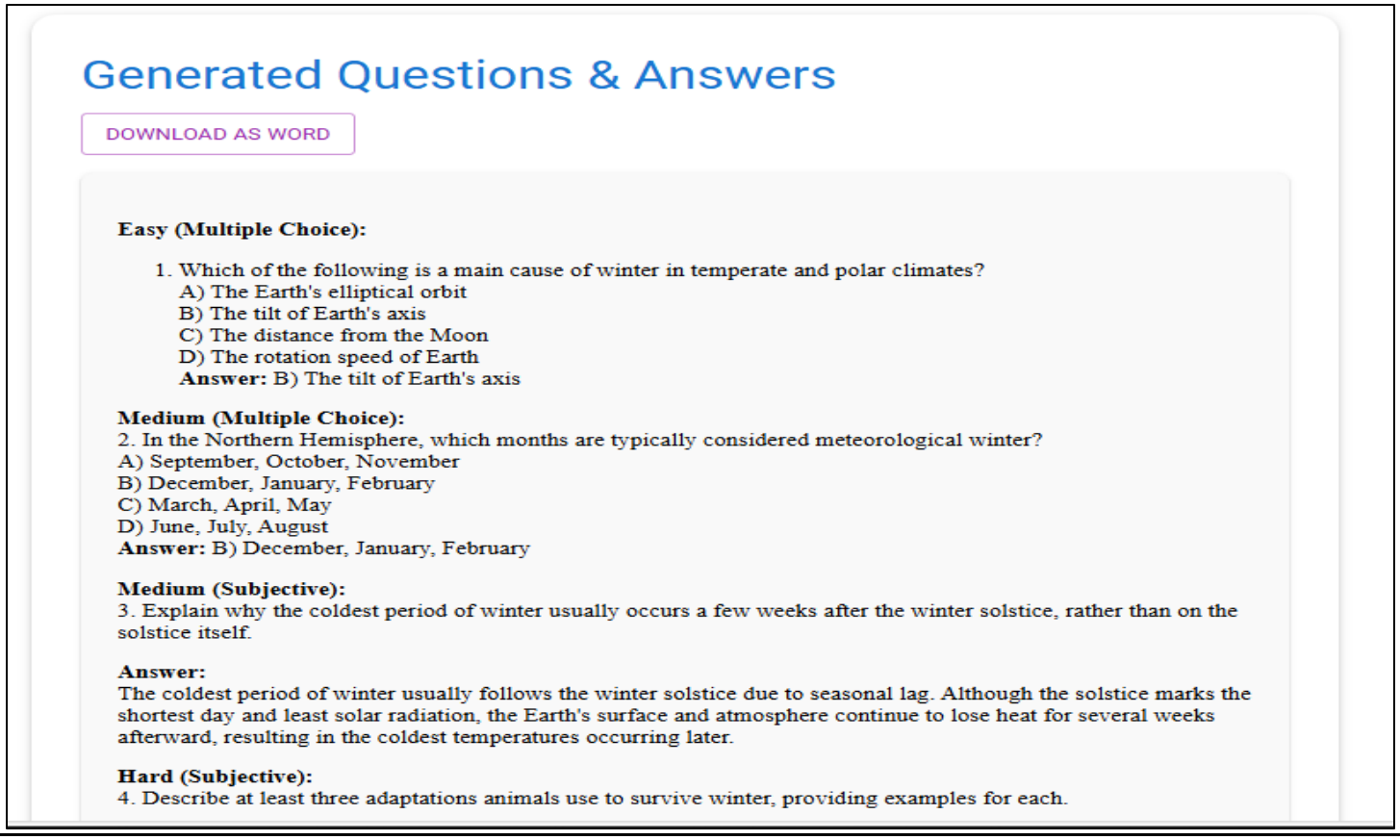
Phase	Duration	Activity	Status
Question Generation Logic	15-Dec-2025 to 02-Jan-2025	Implement AI-based question generation with filters for role, difficulty, and question type.	In Progress
UI Enhancements	03-Jan-2025 to 07-Jan-2025	Improve UI design for better user experience	Pending
Validations	08-Jan-2025 to 11-Jan-2025	Add input validations for file upload, difficulty percentages, and role selection.	Pending
Testing & Bug Fixing	11-Jan-2025 to 28-Jan-2025	Perform end-to-end testing, fix issues, and optimize performance.	Pending
Documentation & Presentation	29-Jan-2025 to 30-Jan-2025	Prepare final report with screenshots and create PPT for viva.	Pending

7. Image reference for the progress made:

- Home Page of LearnifyAI



- Q&A Page



Hard (Subjective):
4. Describe at least three adaptations animals use to survive winter, providing examples for each.

Answer:
Animals adapt to winter through:

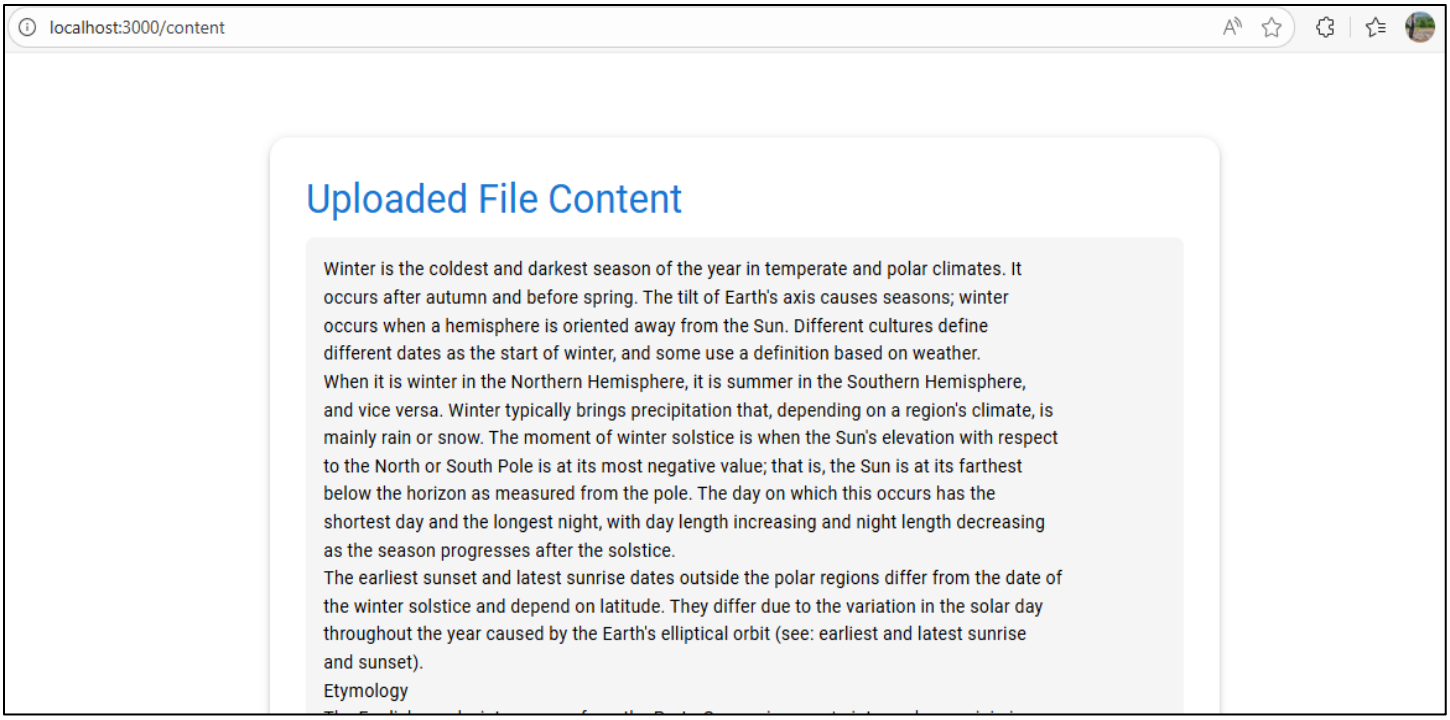
- Migration: Birds and some butterflies migrate to warmer regions.
- Hibernation: Animals like gophers, frogs, snakes, and bats enter a state of reduced metabolic activity.
- Resistance: Some animals, such as the Arctic fox and mountain hare, change their fur color to white for camouflage and grow thicker coats for insulation.

Hard (Subjective):
5. Compare and contrast meteorological, astronomical, and ecological reckonings of winter, including how each defines the season's start and end.

Answer:
Meteorological reckoning defines winter by the three calendar months with the lowest average temperatures (December–February in the Northern Hemisphere). Astronomical reckoning uses fixed points in Earth's orbit, starting at the winter solstice and ending at the March equinox. Ecological reckoning avoids fixed dates, instead marking winter by biological dormancy and local climate, with transitions indicated by events like the blooming of certain plants. Each system uses different criteria—temperature, solar position, or ecological activity—to define winter's timing.

BACK

➢ Show Content Page



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MENTOR'S NAME	**:**	**Vaishnani Dhruvkumar**
CAPSTONE PROJECT TITLE	**:**	**LearnifyAI**

EVALUATION:

Remarks of the mentor:

The project is progressing well. The student has a clear understanding of the problem and is effectively utilizing AI. With consistent progress, the final solution is expected to be highly valuable.

CAPSTONE PROJECT PROGRESS EVALUATION *(Please put a tick (✔) mark in the appropriate box)*

EC No.	Component	Excellent	Good	Fair	Poor
1.	Capstone Project Outline		✔		
2.	Work Progress & Achievements	✔			
3.	Initiative and Originality	✔			
4.	Documentation & Expression		✔		
5.	Research & Innovation	✔			
6.	Relevance to the work environment			✔	

	Mentor	Additional Examiner
Name	Vaishnani Dhruvkumar	Achit Singhal
Qualification	B.tech	PGDIT
Designation	Senior Technical Lead	TECHNICAL MANAGER
Employing Org and Loc.	HCLTECH Ltd, Pune	HCLTECH Ltd, Noida
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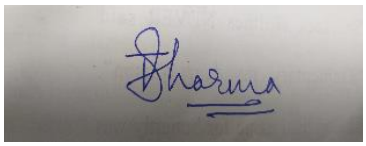
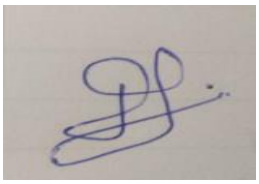
Email Address	**vaishnanidhru.jiten@hcltech.com**	Achit.Singhal@hcltech.com
Date	17.12.2025	17.12.2025

		achit singhal
Signature of Student	Signature of Mentor	Signature of Additional Examiner
Tushar Sharma	Vaishnani Dhruvkumar	Achit Singhal