CSM & AIML Students' Major Project Development Timeline

Name of the Course:	IV – II Major-Project	Credits: 6
Name of the Course:	IV – II TalentFarm Project	Credits: 2

Phase 1: 1st week of December 2024

- Project teams are advised to select a problem statement from the list of "Smart India Hackathon" problem statements (The problem statement should not clash with the problem statements, chosen by their seniors).
- By the end of 1st week of December 2024, IV – II Major-Project Team should show the static pages of the project (Prototype).

Phase 2: 1st week of January 2025

- Project Exhibit 1–Team should exhibit 3 services of project.

Phase 3: 1st week of February 2025

- Project Exhibit 2–Team should exhibit 6 services of project.

Phase 4: 1st week of March 2025

- Project Exhibit 3–Team should exhibit 8 services of project.

Phase 5: Deploy the fully implemented project

- **Evaluation of the project will be done as per the rubrics provided in the Annexure 1.**
- **Instructions for Supervisors**
  - Every Project-Supervisor should sit with the project teams for at least one hour a day to make the features of the project developed and a prototype is made ready on time.
  - It is the responsibility of the supervisor to coordinate with students and the implementation of the project.
- **Instructions for students**
  - Students are advised to use the FIGMA Technology to develop the static webpages.
  - Students may choose the Udemy FIGMA courses suitably, for help. (https://www.udemy.com/course/uiux-design-with-figma-5-real-world-projects2022/?kw=figma+projects&src=sac&subs_filter_type=subs_only&couponCode=KEEPLEARNING)
  - Useful Youtube video for understanding FIGMA: Figma UI Design Tutorial - How To Redesign Any Website (A Beginner's Guide)

Annexure 1.

Rubrics for Project Evaluation

1. Web Application Functionality (15 marks)

- **Core Features (8/15 marks):**
  Assess the functionality of the web application, including basic features (e.g., user authentication, CRUD operations) and how well these features are implemented.
    - Example: All core features are implemented but require optimization for user experience.
- **User Interface (UI) Design (4/15 marks):**
  Evaluate the aesthetics, intuitiveness, and consistency of the UI design across various devices.
    - Example: The design is appealing and responsive, but certain UI elements could be more user-friendly.
- **User Experience (UX) (3/15 marks):**
  How smooth and intuitive is the user experience? Are there any usability or navigation issues?
    - Example: Navigation is intuitive, but a few actions are not clearly defined for users.

Total: 13/15

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2. Back-End Development (15 marks)

- **Server-Side Logic (8/15 marks):**
  Review the server-side code, including API implementation and how well it communicates with the machine learning models and cloud infrastructure.
    - Example: API integration is good but lacks error handling for edge cases.
- **Database Design and Performance (5/15 marks):**
  Assess the database schema, indexing, and optimization for the web application.
    - Example: Database structure is logical, but query performance under heavy loads could be improved.
- **Security (2/15 marks):**
  Evaluate how well security measures such as encryption, input validation, and authentication are implemented.
    - Example: Authentication and encryption are in place, but CSRF protection is missing.

Total: 12/15

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3. Cloud Infrastructure and Integration (20 marks)

- **Cloud Service Usage (8/20 marks):**
  Assess the use of cloud resources such as AWS (or other cloud providers) for hosting, storage, and database management. Were cloud services like EC2, S3, and RDS used effectively?
  - Example: EC2 and S3 are well utilized, but cost management through reserved instances could have been better.
- **Scalability and Performance (5/20 marks):**
  Evaluate the use of cloud features like autoscaling, load balancing, and caching for optimizing performance.
  - Example: Autoscaling is implemented, but performance could be enhanced using load balancing.
- **Deployment and Monitoring (4/20 marks):**
  Review the continuous integration/continuous deployment (CI/CD) pipeline and the use of monitoring tools (e.g., AWS CloudWatch).
  - Example: CI/CD pipeline is functioning well, but monitoring is only partially set up.
- **Cost Optimization (3/20 marks):**
  Assess whether the team used cloud resources cost-effectively, considering reserved instances or serverless computing.
  - Example: Cost management is decent, but opportunities for using cheaper spot instances were missed.

Total: 17/20

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4. Machine Learning Model (25 marks)

- **Model Development and Accuracy (10/25 marks):**
  Assess the complexity and relevance of the machine learning model used. How accurate is the model, and does it meet the project's requirements?
  - Example: The model performs well but could be further tuned for accuracy.
- **Data Preprocessing and Feature Engineering (5/25 marks):**
  Review how well the team handled data preprocessing (e.g., cleaning, normalization) and feature selection.

    - Example: Data preprocessing is thorough, but feature selection could be improved.
- **Integration with Web Application (5/25 marks):**
  Evaluate how well the machine learning model is integrated into the web application. Is the inference process seamless for the user?
    - Example: The model is integrated well, but the response times for inference are slightly delayed.
- **Model Deployment in the Cloud (5/25 marks):**
  Review how the machine learning model is deployed in the cloud (e.g., AWS SageMaker, Azure ML) and the use of cloud resources for scalability.
    - Example: The model is deployed via AWS SageMaker but lacks real-time scalability.

Total: 21/25

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5. Security and Compliance (10 marks)

- **Web Security (5/10 marks):**
  Evaluate the security of the web application, including HTTPS, CSRF protection, and other security best practices.
    - Example: HTTPS is implemented, but input validation needs improvement.
- **Cloud and Model Security (5/10 marks):**
  Review cloud security practices, including IAM roles and encryption, as well as securing machine learning APIs.
    - Example: Cloud security is handled well, but securing ML API access requires more attention.

Total: 8/10

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6. Performance and Optimization (10 marks)

- **Front-End Optimization (3/10 marks):**
  Evaluate how well the front-end is optimized, including load times, caching, and responsiveness.
    - Example: Front-end performance is generally good, but large images could be optimized.

- **Back-End and ML Model Optimization (4/10 marks):**
  Assess how well the back-end and ML model handle load and inference times. Were optimization techniques applied to enhance speed and performance?
    - Example: The back-end performs well under light loads, but ML model inferences could be faster.
- **Database and API Optimization (3/10 marks):**
  Review database and API performance for handling large-scale data and requests.
    - Example: Database queries are optimized, but API response times slow under heavy traffic.

Total: 7/10

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7. Team Collaboration and Project Management (5 marks)

- **Role Distribution and Communication (3/5 marks):**
  Review how well the team worked together, including role assignment and communication.
    - Example: The team worked well, but communication during deployment phases could have been smoother.
- **Project Timeline and Delivery (2/5 marks):**
  Assess whether the project was delivered on time and according to plan.
    - Example: The project was delivered late due to delays in integrating the machine learning model.

Total: 4/5

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8. Challenges and Innovation (5 marks)

- **Problem-Solving Approach (3/5 marks):**
  Review how well the team addressed technical challenges throughout the project.
    - Example: The team handled cloud deployment challenges but struggled with model integration.
- **Innovation in Web, Cloud, or ML (2/5 marks):**
  Did the team implement any innovative features or advanced cloud/ML solutions?
    - Example: The recommendation system using the ML model is an innovative feature, but further advancements in automation could have been explored.

Total: 5/5

Bonus (if applicable):

- **Extra Credit for Advanced Features (up to 5 marks):**
  Award additional marks for advanced cloud services, unique machine learning models, or innovative web features.
- Example: No advanced features beyond the project scope were implemented.

Category	**Marks Awarded**	**Total Marks**
Web Application Functionality		15
Back-End Development		15
Cloud Infrastructure and Integration		20
Machine Learning Model		25
Security and Compliance		10
Performance and Optimization		10
Team Collaboration and Project Management		5
Challenges and Innovation		5
Total		**100**