IAP PORTAL FOR TIET

Capstone Project

CPG 169

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Problem Definition

- The IAP Cell here at TIET uses a portal which uses manual interference for report evaluation hence is only just a medium for communication between different stakeholders.
- It lacks use of state of the art Machine Learning technologies to convert it into a smart system.
- It is hosted on external servers which is an additional expense to the institute while simultaneously providing lesser control over the system.

Problem Scope

- The website is currently being prepared for TIET project semester students of all branches. It can later be extended to any college or university that works under the same structure.
- It would ease the process of maintaining and accessing performance records of students undertaking 6 month industrial training.
- It will also ease the process of evaluating student’s performance by the faculty members and mentors and help in reducing human error.
- The proposed system will keep all the data in place avoiding the risk of loss of any kind and act as future reference for the students.

Project Objectives

To study the existent techniques/systems already being used in our problem domain.

To design an updated, state of the art portal which will act as an interface between industry and students

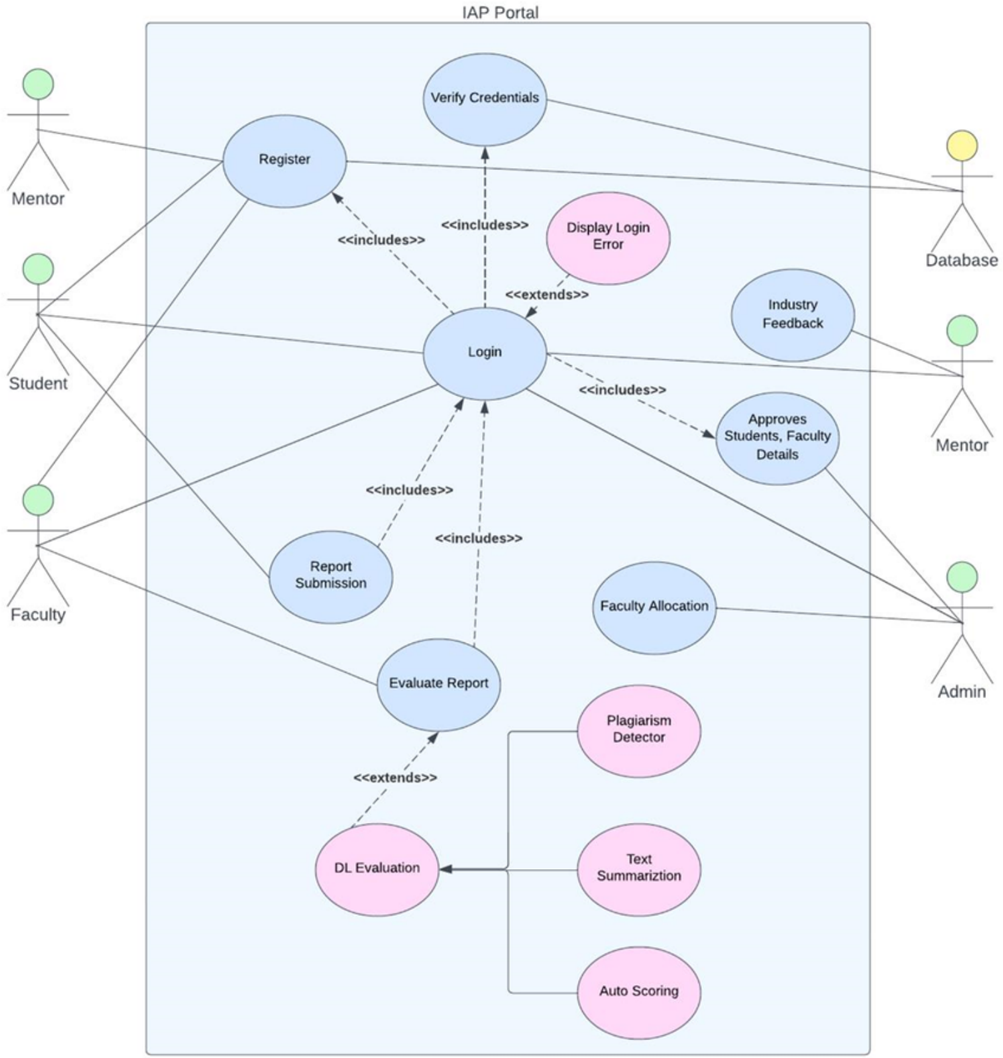
To include relevant NLP features like text summarization and plagiarism detection using Deep learning

To integrate the whole system and deploy it.

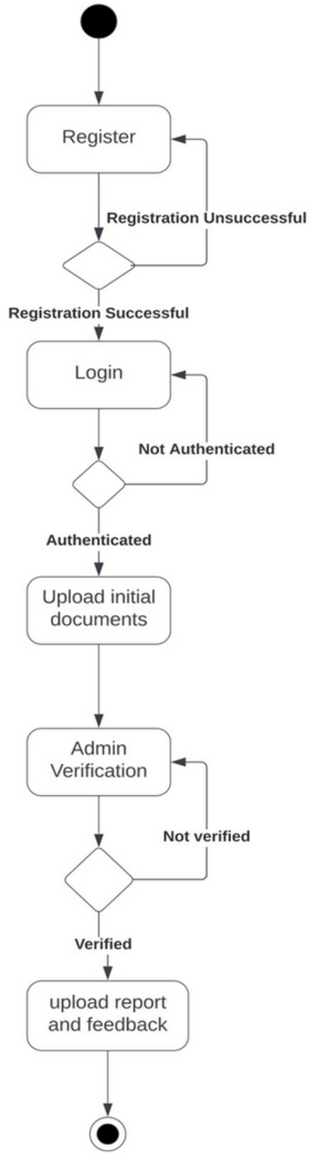
Literature Survey

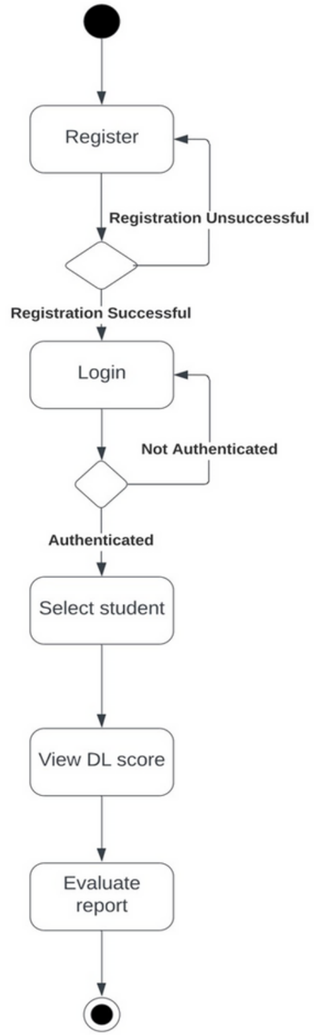
Paper Title	Tools/Technology	Citation
Text Summarization with Pretrained Encoders	BERT	Liu, Y., & Lapata, M. (2019). Text summarization with pretrained encoders. arXiv preprint arXiv:1908.08345.
Comparison of Statistical, Machine Learning and Deep Learning Methods for Text Summarization	TF-IDF, seq2seq model based on RNN, ROUGE (Recall-Oriented Understudy for Gisting Evaluation) metrics	Day, M. Y., & Chen, C. Y. (2018, July). Artificial intelligence for automatic text summarization. In 2018 IEEE International Conference on Information Reuse and Integration (IRI) (pp. 478-484). IEEE
Deep Learning (RNN) for Plagiarism Detection (Two Phase)	Word2vec, Document Similarity calculation using Cosine and Jaccard Similarity	Gharavi, E., Bijari, K., Zahirnia, K., & Veisi, H. (2016). A Deep Learning Approach to Persian Plagiarism Detection. FIRE (Working Notes), 34, 154-159.
Recurrent Neural Networks (LSTM) along with Convolutional Neural Network for Automatic Scoring	LSTMs with Mean over-Time Pooling and Hierarchical CNN	Dong, F., Zhang, Y., & Yang, J. (2017, August). Attention-based Recurrent Convolutional Neural Network for Automatic Essay Scoring. In CoNLL (pp. 153-162).
Multi-Perspective Sentence Similarity Modelling with Convolutional Neural Networks	Word2vec, Convolutional Neural Networks with different Pooling strategies, Cosine and Euclidean Distance for Comparison	He, H., Gimpel, K., & Lin, J. (2015, September). Multi-perspective sentence similarity modeling with convolutional neural networks. In Proceedings of the 2015 conference on empirical methods in natural language processing (pp. 1576-1586).
Convolutional Neural Network (CNN), Baselines: Bayesian Linear Ridge Regression (BLRR) and Support Vector Regression (SVR)	CNN, ML-p	Dong, F., & Zhang, Y. (2016, November). Automatic Features for Essay Scoring-An Empirical Study. In EMNLP (Vol. 435, pp. 107-77).

Use Case Diagram

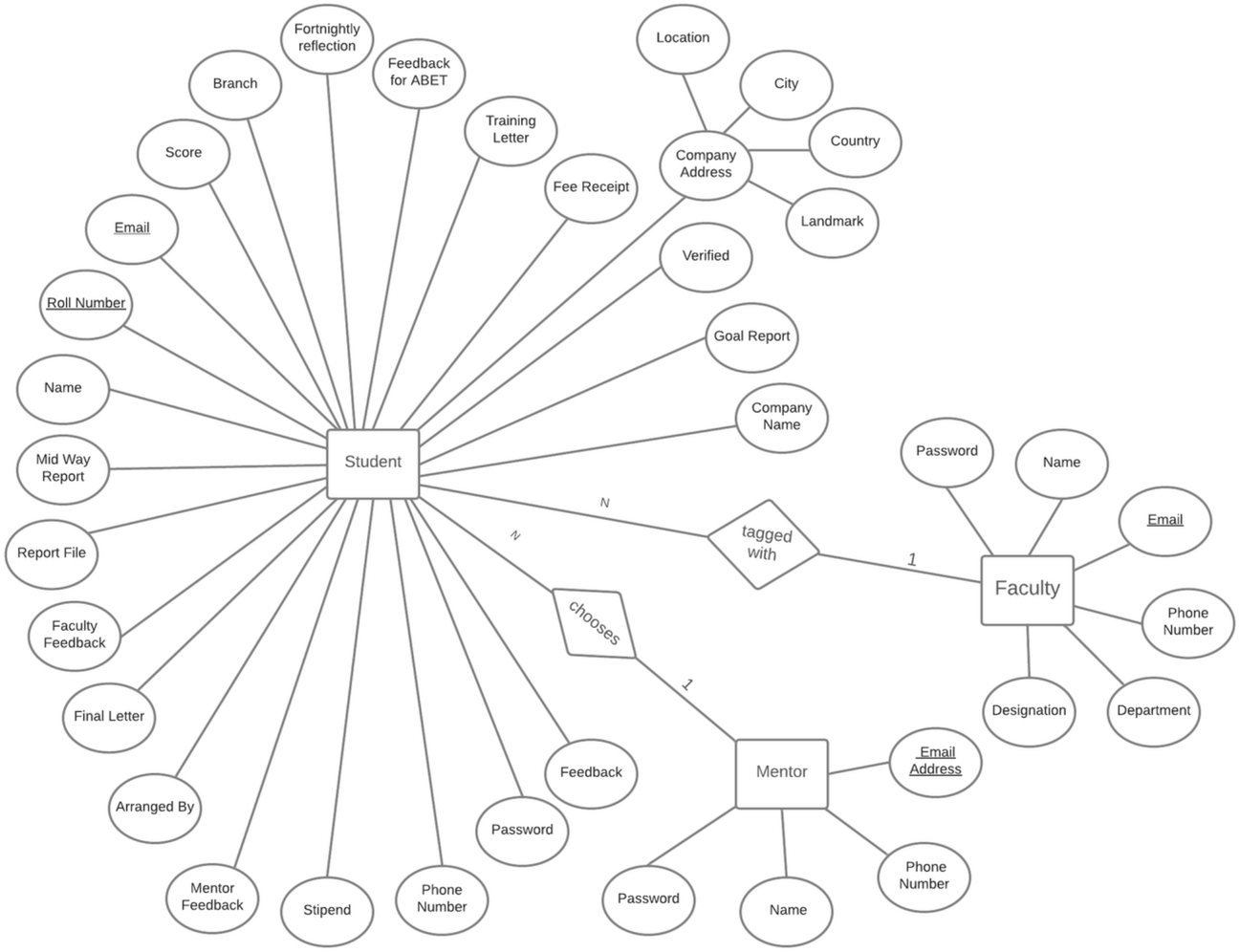


Activity Diagram

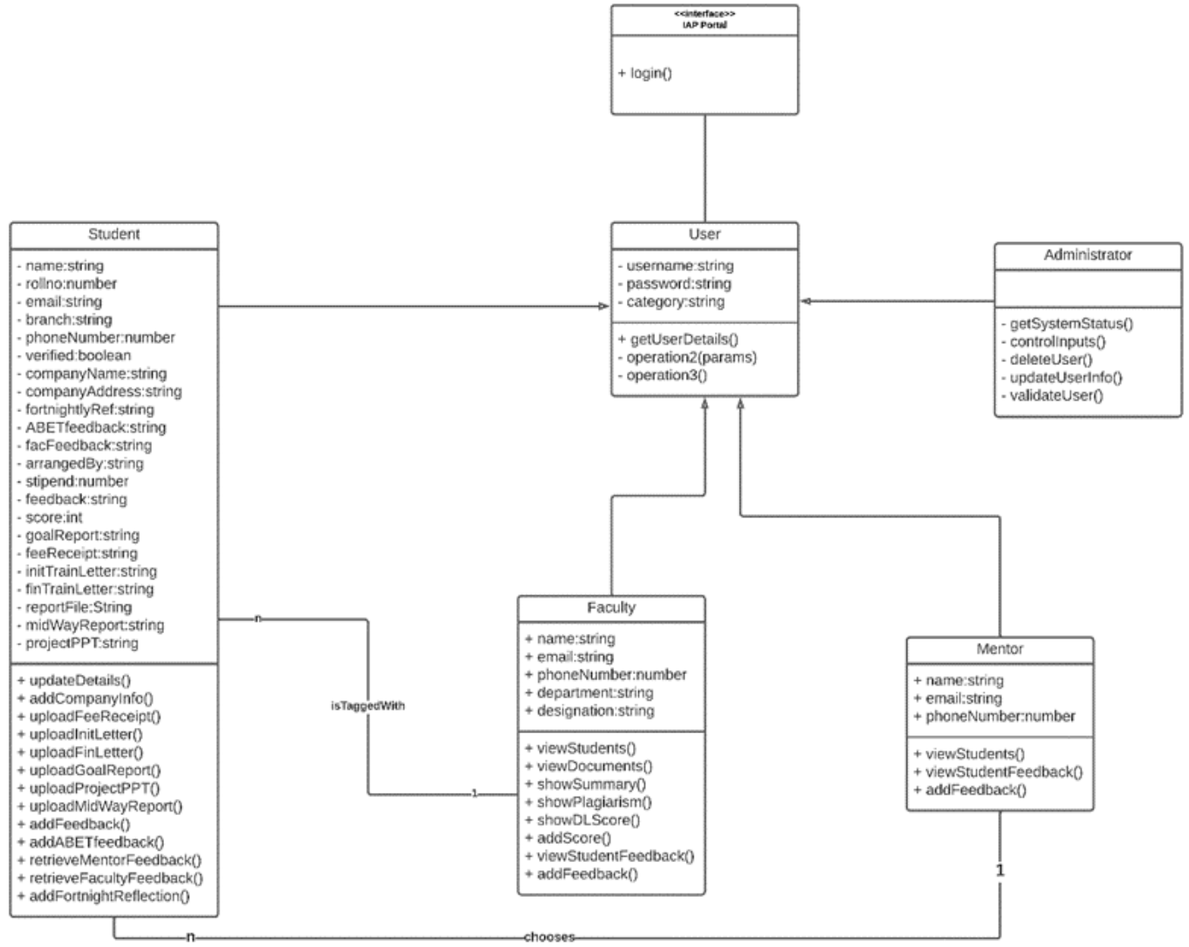




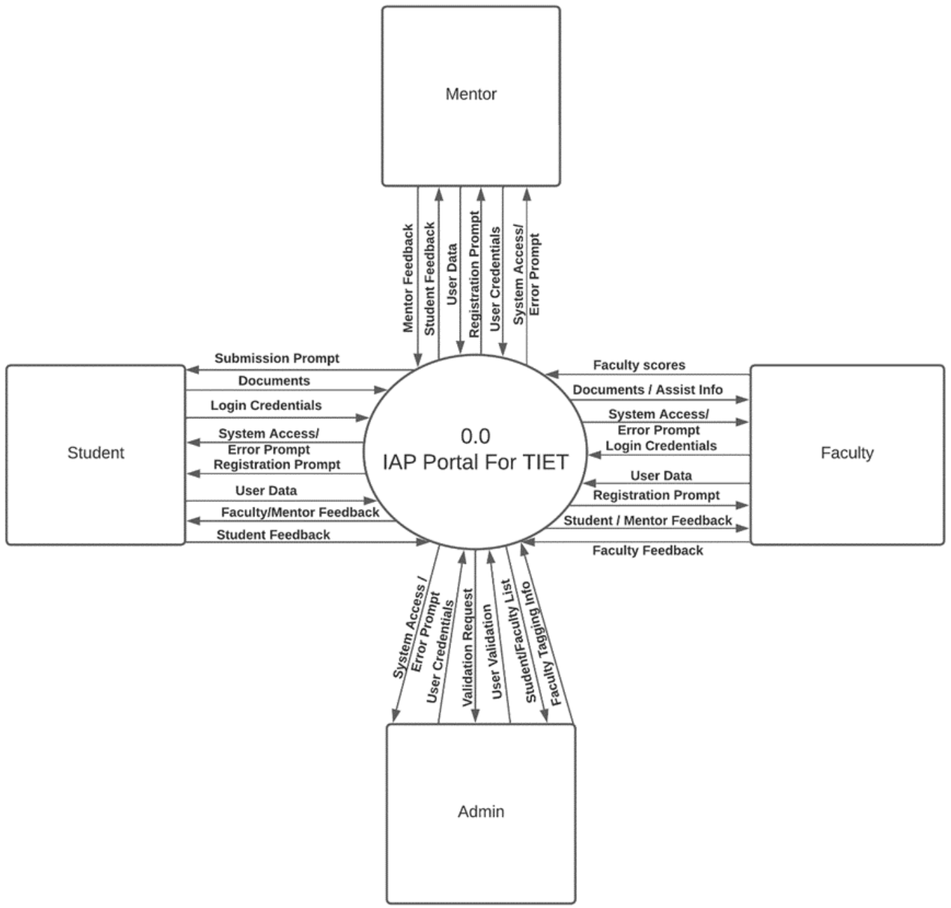
ER Diagram

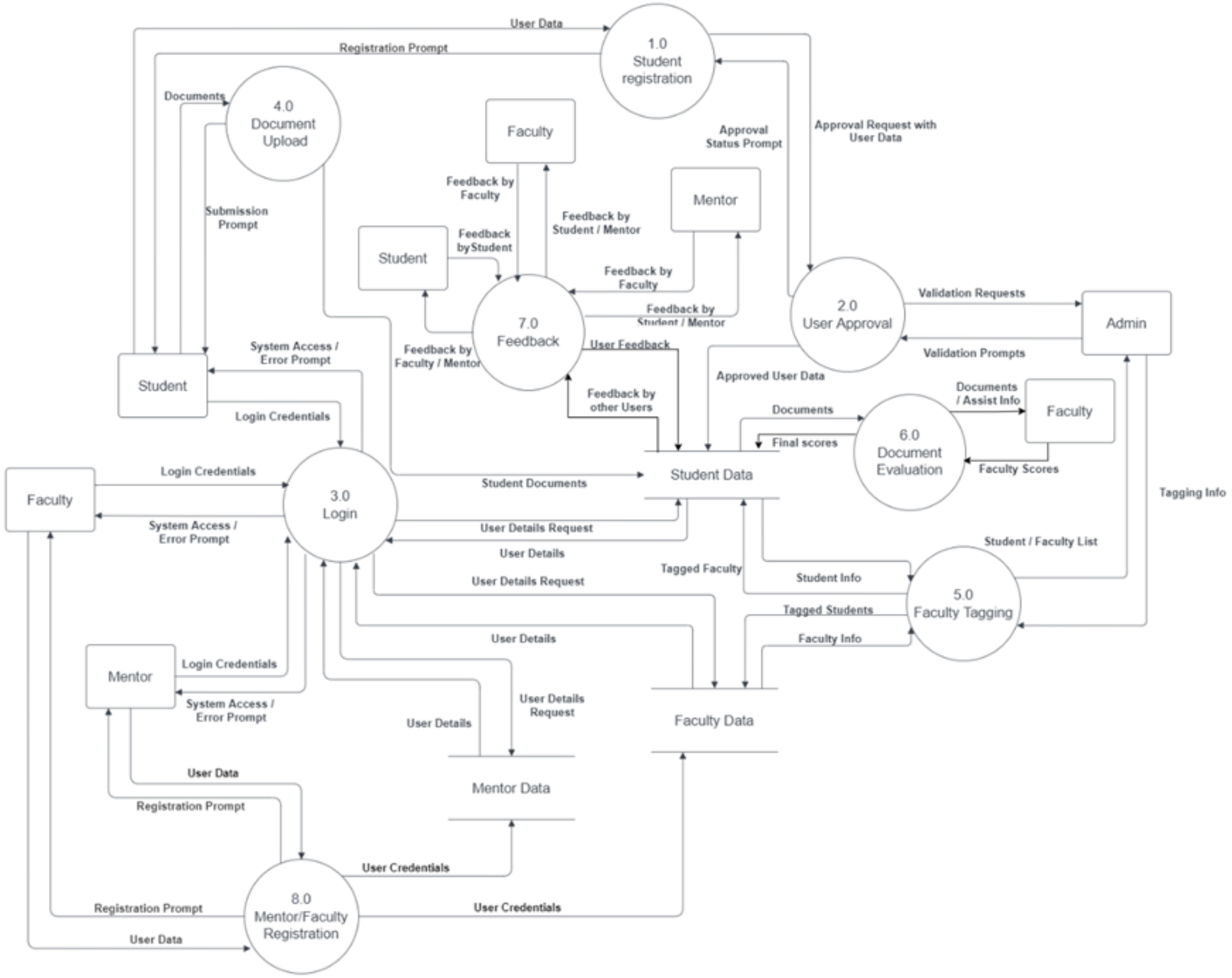


Class Diagram



Data Flow Diagrams

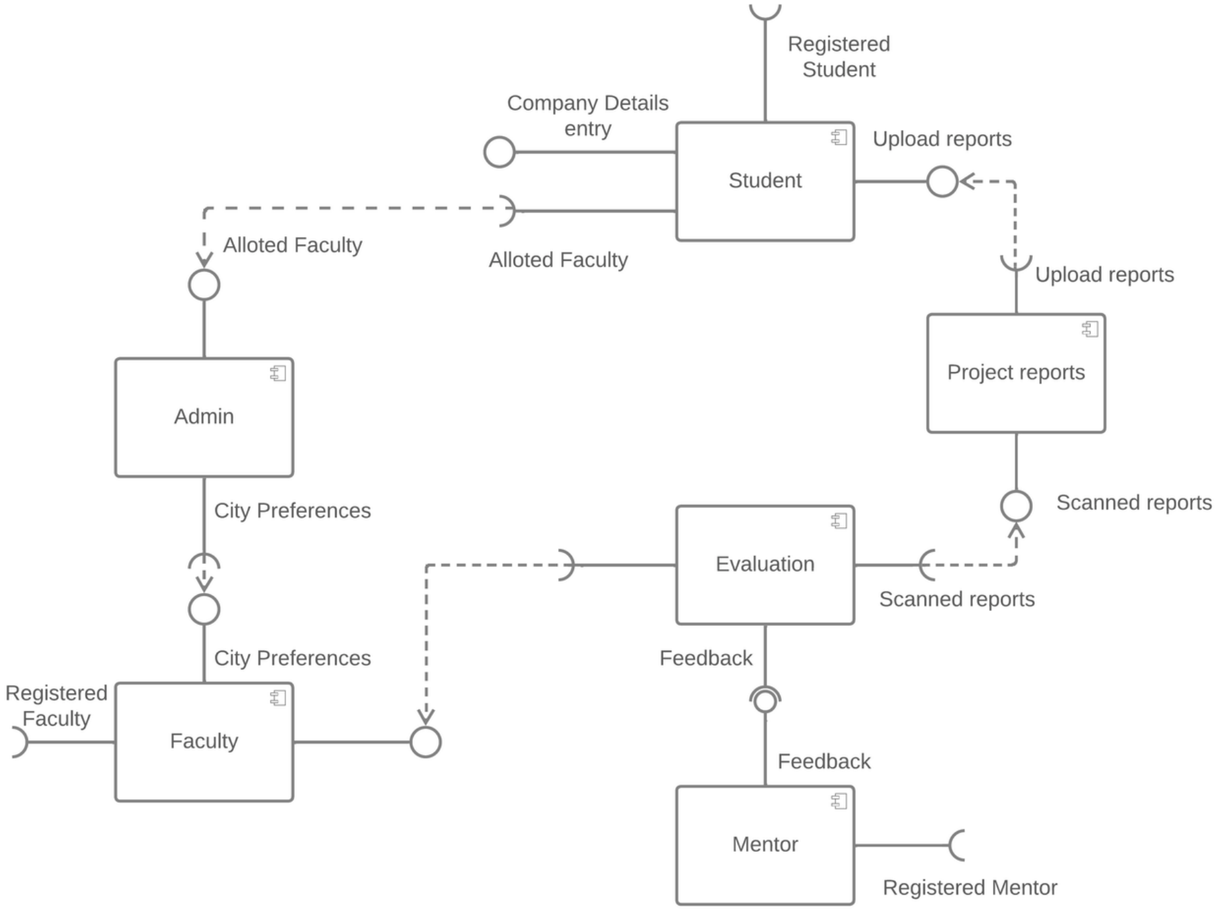




Tools /Platforms Used

SendGrid

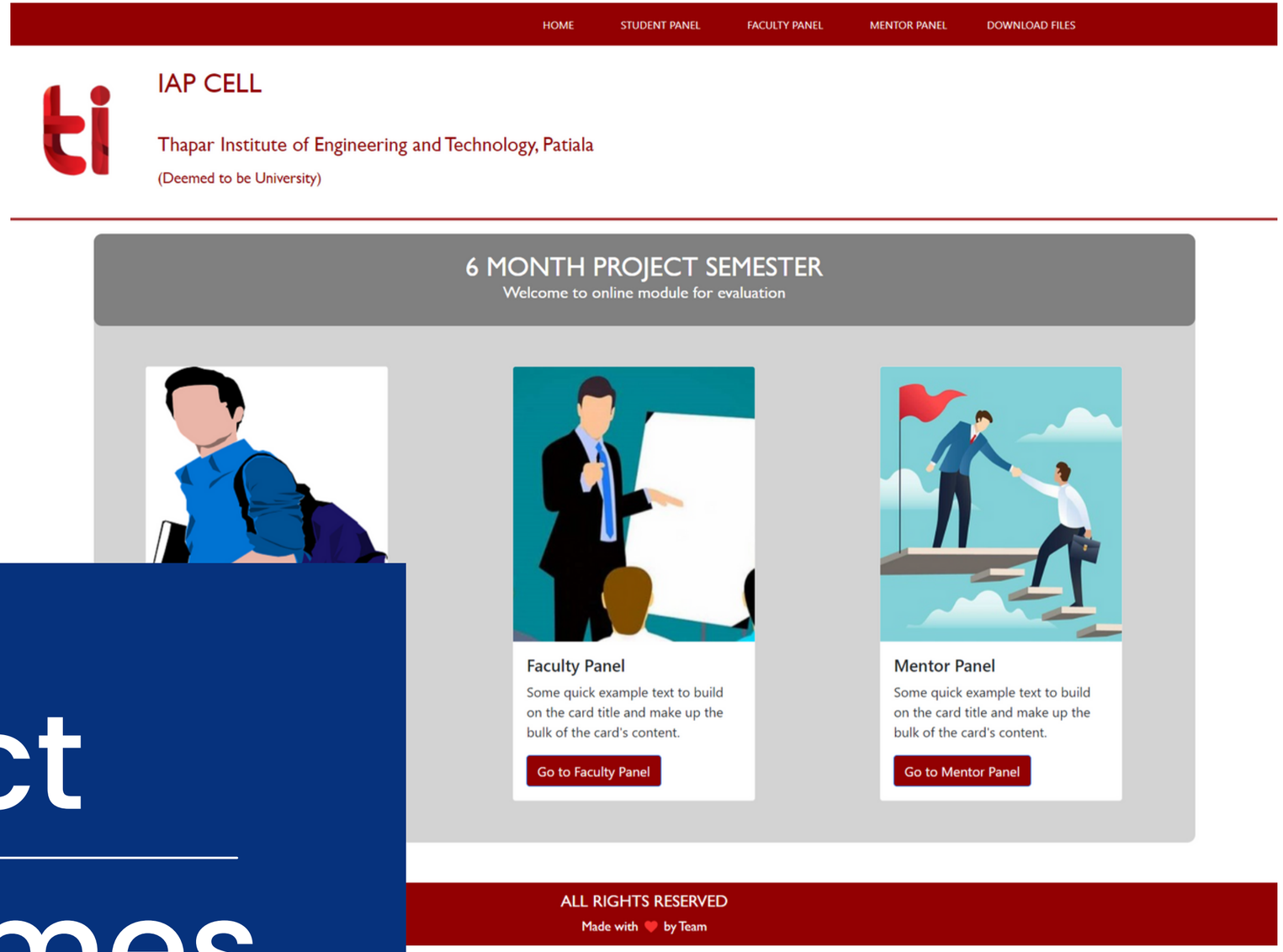
Component Diagram



Cost Analysis

S.no	Service	Price	Plan	Total Cost
1	MongoDB [10GB to 4TB]	Rs 4500/-	Monthly	Rs. 54000/-
2	Twilio Sendgrid	Rs 1600/-	Monthly	Rs. 19200/-
3	Testing Server	Rs 1000/-	One Time	Rs 1000/-
4	Miscellaneous	Rs 50000/-	One Time	Rs 50000/-
				Rs 1,24,000/-

Product Outcomes



Individual Contributions

Shivangi Singla

Back End Development
Documentation
Research
Planning

Jaskirat Singh

Back End Development
Data Design
Research
Documentation

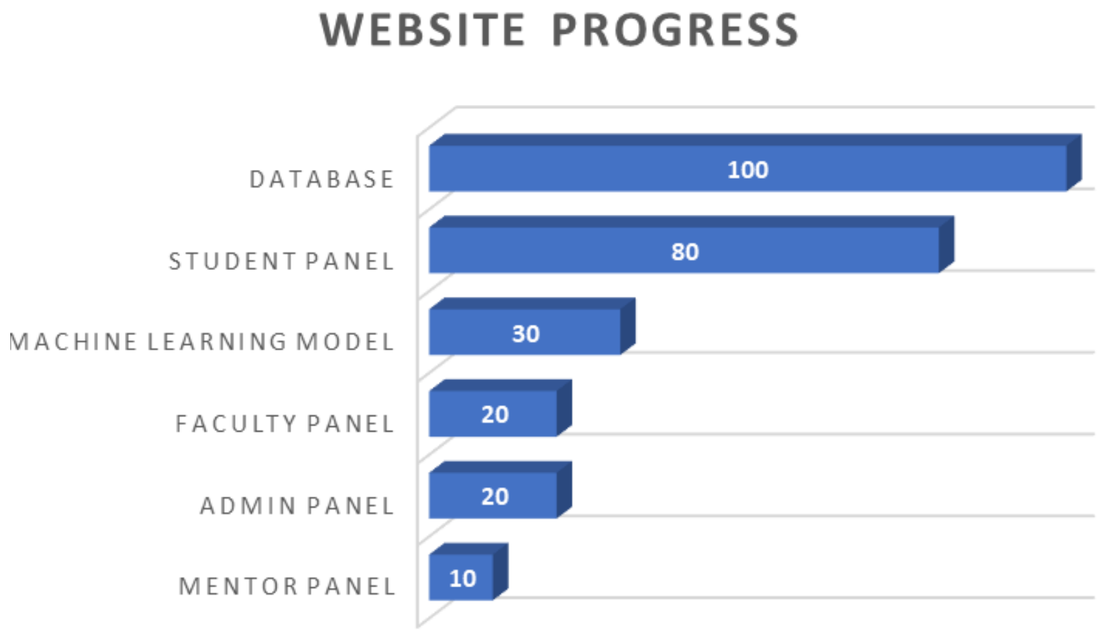
Alwinder Singh

Model Development
Research
Planning
Front End Development

Ruchika Aggarwal

Front End Development
Research
Compilation
Documentation

Current Progress



Future Plan

Sr. No.	Activity	Month	September				October				November				December			
		Week	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
4	Faculty and Mentor Panel	Plan																
		Actual																
5	Testing	Plan																
		Actual																
6	Development of ML modules.	Plan																
		Actual																
7	Testing of ML Models and	Plan																
		Actual																
8	Final testing,Deployment	Plan																
		Actual																

Thank You !!