Students' Placement Office, IIT Kanpur

Project Verification Form

Title of the Project	**Customer Insights Through RFM Analysis**
Commencement Date	21st Nov, 2023
Completion Date	15th Dec, 2023
Project Supervisor	Ninad Mirajgoankar
Organization/Institution where the Project was accomplished	GEP Worldwide

Project Description (You can use extra A4 sheets in case you run out of space however the extra sheets should also have the seal & signature of the Project Supervisor or the relevant authority)

Segment customers on recency, frequency, monetary value, purchase history (RFM) to develop targeted marketing strategies

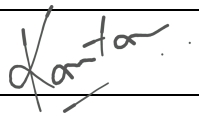
- Used **K-means clustering** to group **500K+** customers as high-value loyal, low-value loyal, infrequent, and churned segments
- Employed **elbow method** and **silhouette analysis** to validate the optimal number of clusters required for segmentation

Visualised data and devised metrics like revenue share, **average RFM per segment**, customer lifetime value to derive insights

Identified **infrequent (50%)** and **high-value loyal** customers **(45%)** as major contributors to net revenue and business growth

By appending your signatures to this form you acknowledge and agree that:

- This form along with the certificate would serve as the official document between the project supervisor and Students Placement Office, IIT Kanpur regarding verification of the student's project work
- The student will provide additional information and documentation relevant to his/her project upon request by the Students' Placement Office
- The student has clearly defined his/her individual role in projects done in cooperation with other students, faculty, groups or company personnel.
- Incorrectly over-stating the reach, impact and/or quantitative/qualitative results of a project is unethical.
- In case of violation of any of the above rules, Students' Placement Office, IIT Kanpur reserves the right to take necessary action including de-registering the student from the placement season and reporting the misconduct to the Institute Authorities.

Submitted by:-	**Project Supervisor Details:-**
Name: Kaustav Dasgupta	Name: Ninad Mirajgoankar
Roll No: 210501	Designation: Consultant @ GEP
Signature: 	Signature:

Students' Placement Office, IIT Kanpur

Project Verification Form

Title of the Project	**Yoga Asana Prediction and Feedback Generation**
Commencement Date	4th Jan
Completion Date	20th April
Project Supervisor	***Dr. Tushar Sandhan, EE, IIT Kanpur***
Organization/Institution where the Project was accomplished	IIT Kanpur

Project Description (You can use extra A4 sheets in case you run out of space however the extra sheets should also have the seal & signature of the Project Supervisor or the relevant authority)

- Enhance self-guided yoga practice with a **deep learning model**, classifying yoga asanas and providing **real-time feedback**

- Engineered hybrid **CNN-LSTM model** capturing spatial and temporal features, trained on **88 videos** from diverse datasets
- Utilized **OpenCV** for video processing, **MediaPipe** for pose landmark extraction, **Keras with TensorFlow** for model training
- Conducted **angular vector analyses** to compare user poses with ideal poses, and implemented a feedback mechanism

- Classified videos into **6 asanas**, achieving a framewise accuracy of **99.05%**, with polling improving accuracy to **99.66%**
- Enabled **precise feedback** by demonstrating the closest intermediate poses from input videos; comparing them to ideal poses

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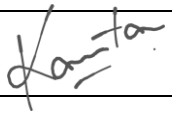
Submitted by:-	**Project Supervisor Details:-**
Name: Kaustav Dasgupta	Name: Dr. Tushar Sandhan
Roll No: 210501	Designation: Assistant Professor, Dept of Electrical Engineering, IIT Kanpur
Signature: 	Signature: