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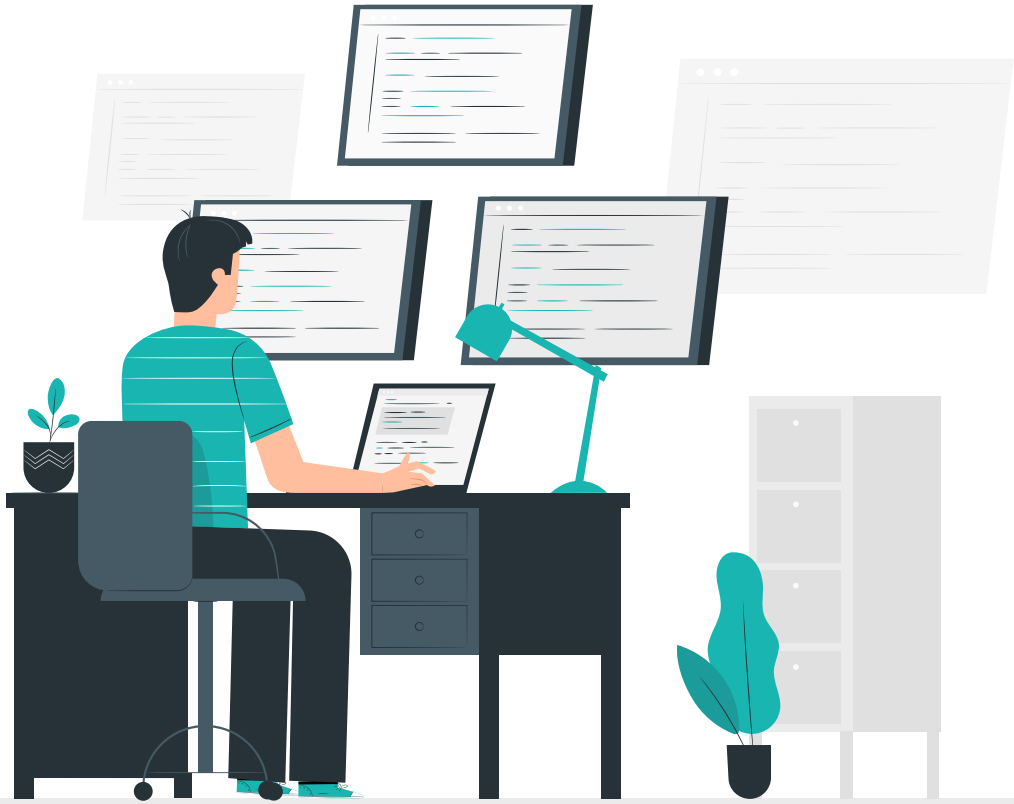
CUSTOMER PURCHASE PREDICTION

Using Machine Learning models to predict customer behaviour on e-commerce websites



ME781 DATA MINING/**GROUP 3**
203100068 MUDIT SAND
193100008 JAYKUMAR GUPTA
180100029 BURRA SRIHITH BHARADWAJ
170040106 BAVISH K
150040010 TANYA GUPTA

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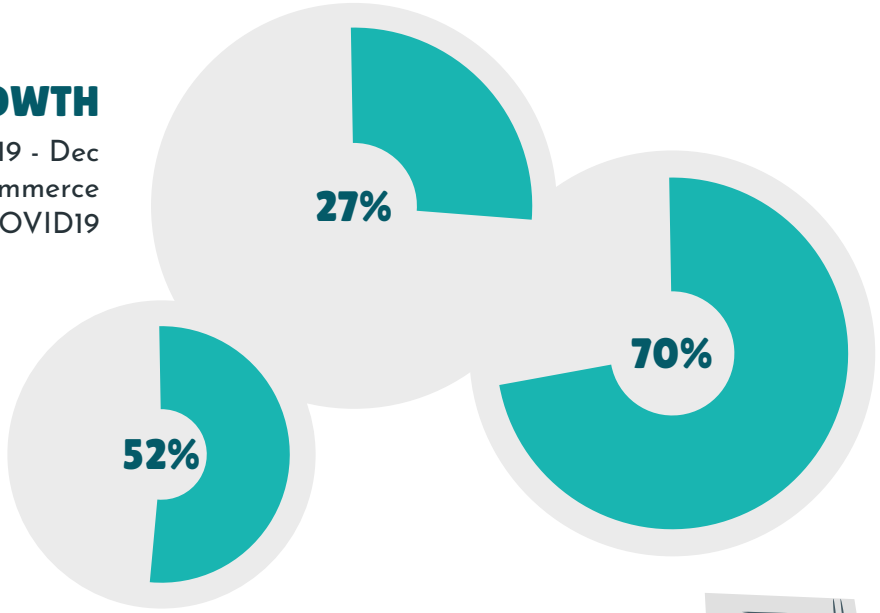
PROBLEM STATEMENT

Y–O–Y GROWTH

Between Dec 2019 - Dec 2020 in ecommerce business due to COVID19

SMALL BUSINESSES

Had to close shops in the same period, due to lack of technological support



CUSTOMERS

Do their shopping online, while of the remaining, 80% see reviews online before buying in stores

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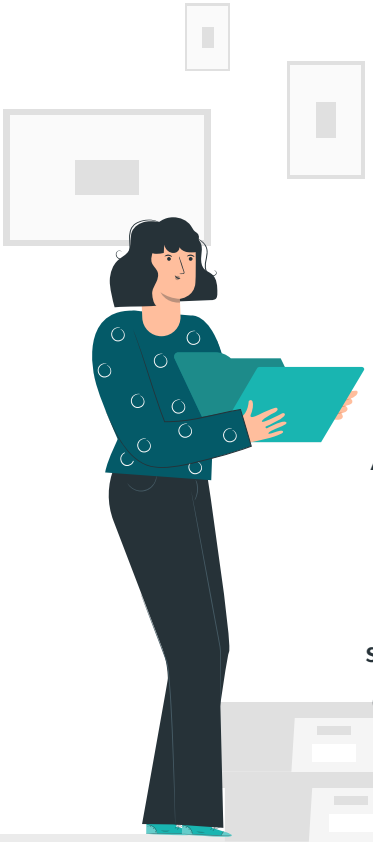
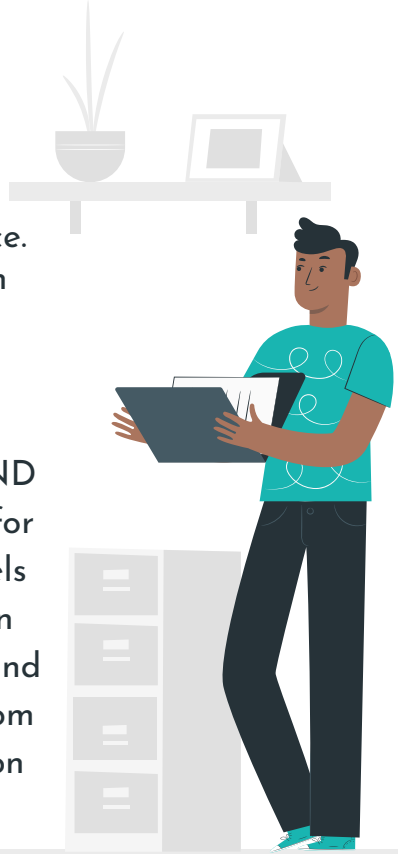
PROJECT OBJECTIVE



COVID-19 has accelerated the transition from visiting physical stores to online shopping. Predicting customer behavior in the context of e-commerce is gaining importance. It can increase customer satisfaction and sales, resulting in higher conversion rates and a competitive advantage, by facilitating a more personalized shopping process.

At ***PREDICT.AI***, we aim to HELP GROWING STARTUPS AND BUSINESSES utilize their customer data and build models for PREDICTING CUSTOMER BEHAVIOUR.. Comparing models will give further insight into the performance differences on static customer data. Conducting descriptive data analysis and data visualisation will help our clients extract more value from data and make decisions to boost their customer satisfaction



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PROJECT DEFINITION

UNIQUE SELLING PROPOSITION & PROTECTION OF USP

1. Easy to use software
2. Domain experts help
3. High accuracy models
4. Data protection and privacy
5. Branding of USP
6. AI Chatbot for support

BARRIER TO ENTRY & EXISTING PRODUCTS/SERVICES

1. Companies not wanting to share data
2. Companies building their own AI Teams
3. Google Analytics
4. Point Defiance Zoo
5. Aquarium
6. NTENT

CUSTOMER REQUIREMENTS

1. Accurate models
2. User satisfaction
3. Increasing revenue/campaign
4. 24/7 Help and support

BUSINESS CASE

1. Target startups and small businesses
2. Publish conclusions from publicly available data
3. Subscription model like Bloomberg for companies
4. Testimonials and references from satisfied clients

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TECHNOLOGY LANDSCAPE ASSESSMENT

01 Patents

- Jivox Kairos™
- Predictive Intent Segments by Acxiom and AmEx

02 Published Literature

1. Cirqueira D., Hofer M., Nedbal D., Helfert M., Bezbradica M. (2020). "Customer Purchase Behavior Prediction in E-commerce: A Conceptual Framework and Research Agenda." *Lecture Notes in Computer Science*, vol 11948. Springer, Cham.
2. Kumar, A., Kabra, G., Mussada, E.K. et al. "Combined artificial bee colony algorithm and machine learning techniques for prediction of online consumer repurchase intention." *Neural Comput & Applic* 31, 877–890 (2019)
3. Dennis Koehn, Stefan Lessmann, Markus Schaal,"Predicting online shopping behaviour from clickstream data using deep learning",*Expert Systems with Applications*,*Volume* 150,2020,113342.
4. Chen, Zhen-Yu, and Zhi-Ping Fan. "Distributed customer behavior prediction using multiplex data: a collaborative MK-SVM approach." *Knowledge-Based Systems* 35 (2012): 111-119.

03 Open Libraries

- NumPy
- Pandas
- SciKit-Learn
- Matplotlib
- Seaborn
- Plotly
- Pydot
- XGBoost
- Unittest/pytest

No proprietary libraries needed*

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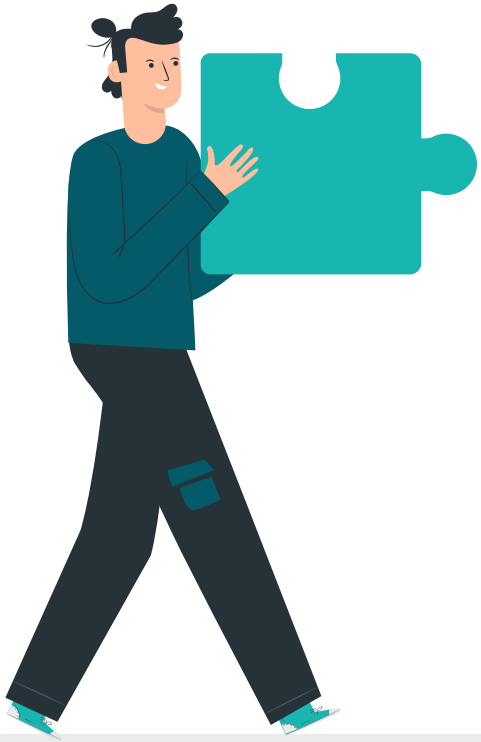
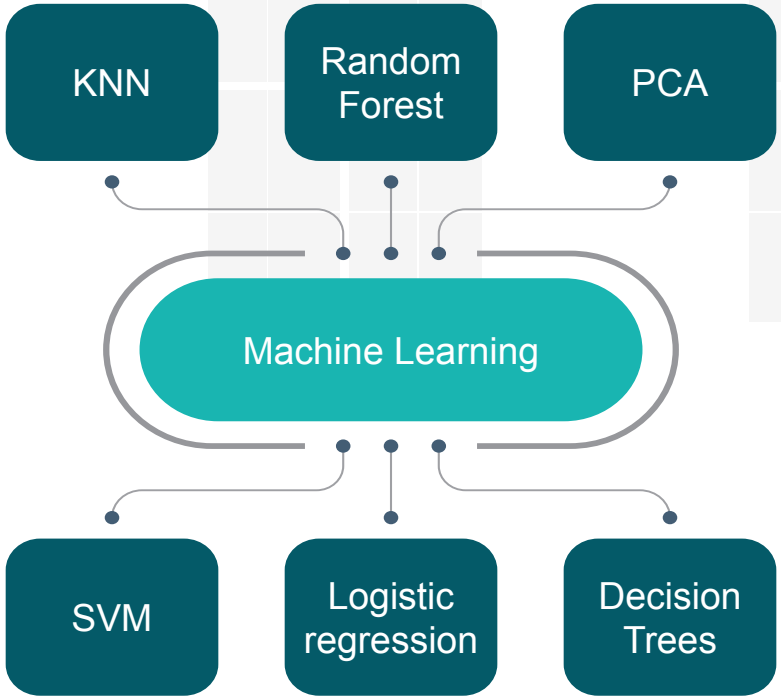
ALGORITHMS





Classification and clustering algorithms are used since the answer is a binary variable.

Data preprocessing is done to convert data to categorical or numerical data types, and keeping in mind ordinal, ratio interval data types.

The dataset is divided in 80:20 test-train ration and these algorithms are compared based on their accuracy on the test dataset.

GANTT CHART

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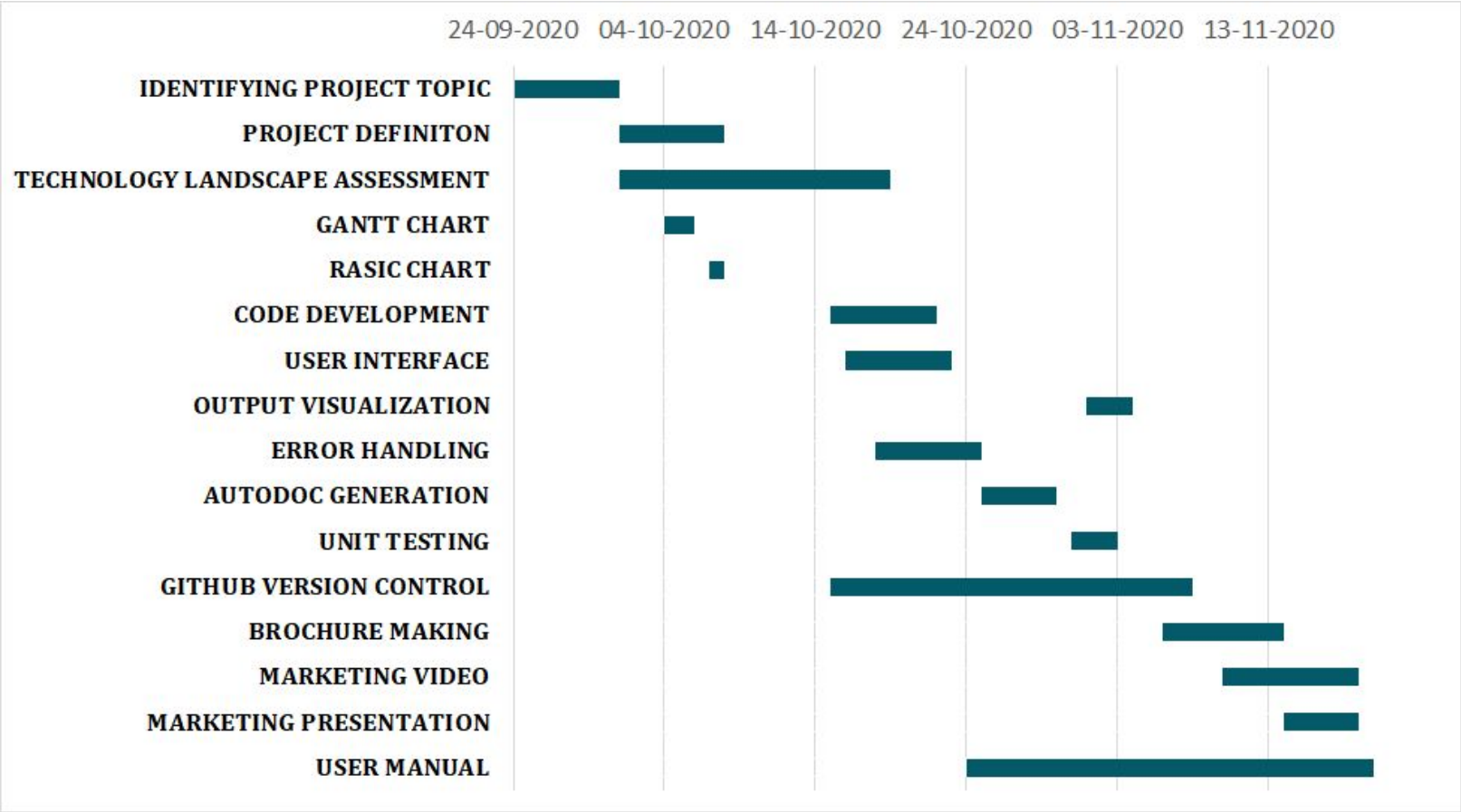

RASIC CHART

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Tasks \ People	MUDIT	BAVISH	JAY	SRIHITH	TANYA
OBJECTIVE AND DEFINITION	A	A	S	S	R
TECHNOLOGY LANDS-CAPE ASSESSMENT	R	S			S
PLANNING - TIMELINE, GANTT, RASIC CHARTS	A	A	A	A	R
CONCEPTUAL DESIGN - MODEL/DATASET SELECT	A	A	R	S	A
CODE DEVELOPMENT PHASE 1		R	S	S	
CODE DEVELOPMENT PHASE 2	S	R		S	S
MARKETING BROCHURE, PRESENTATION, VIDEO	S		S		R
USER MANUAL & PROJECT REPORT	S	S	S	R	S

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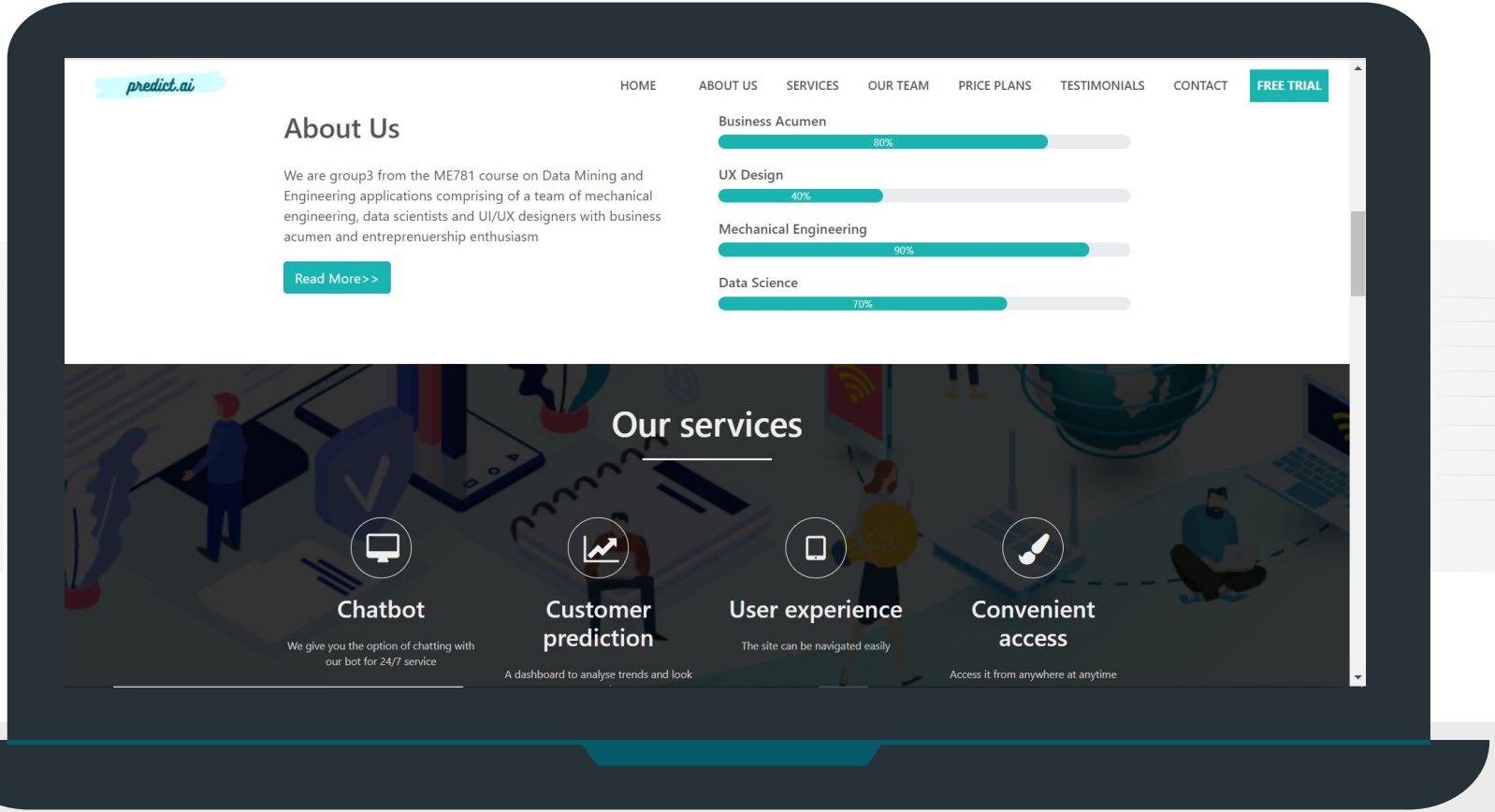
SNEAK PEEK – HOME



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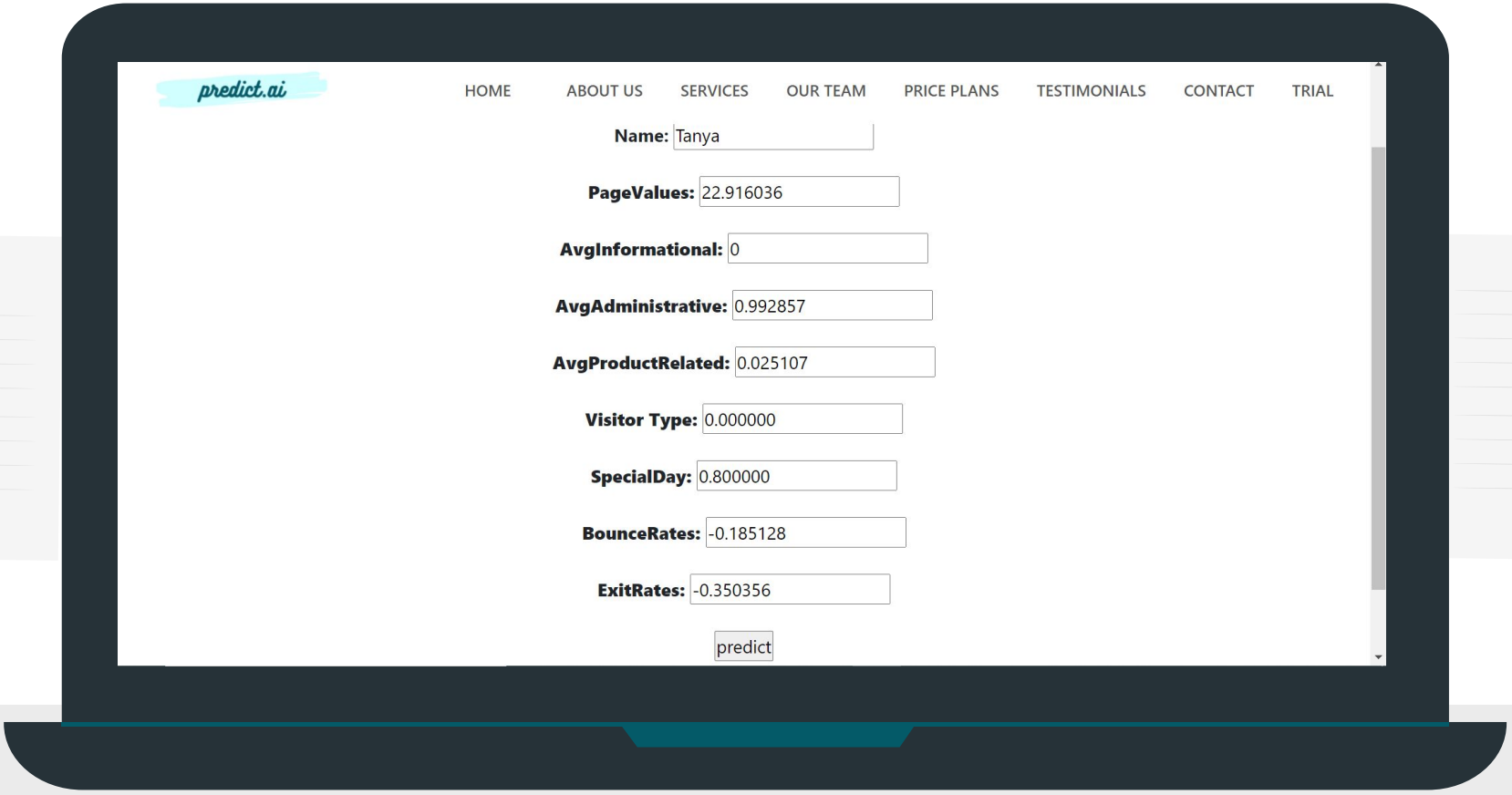
SNEAK PEEK – DATA INPUT



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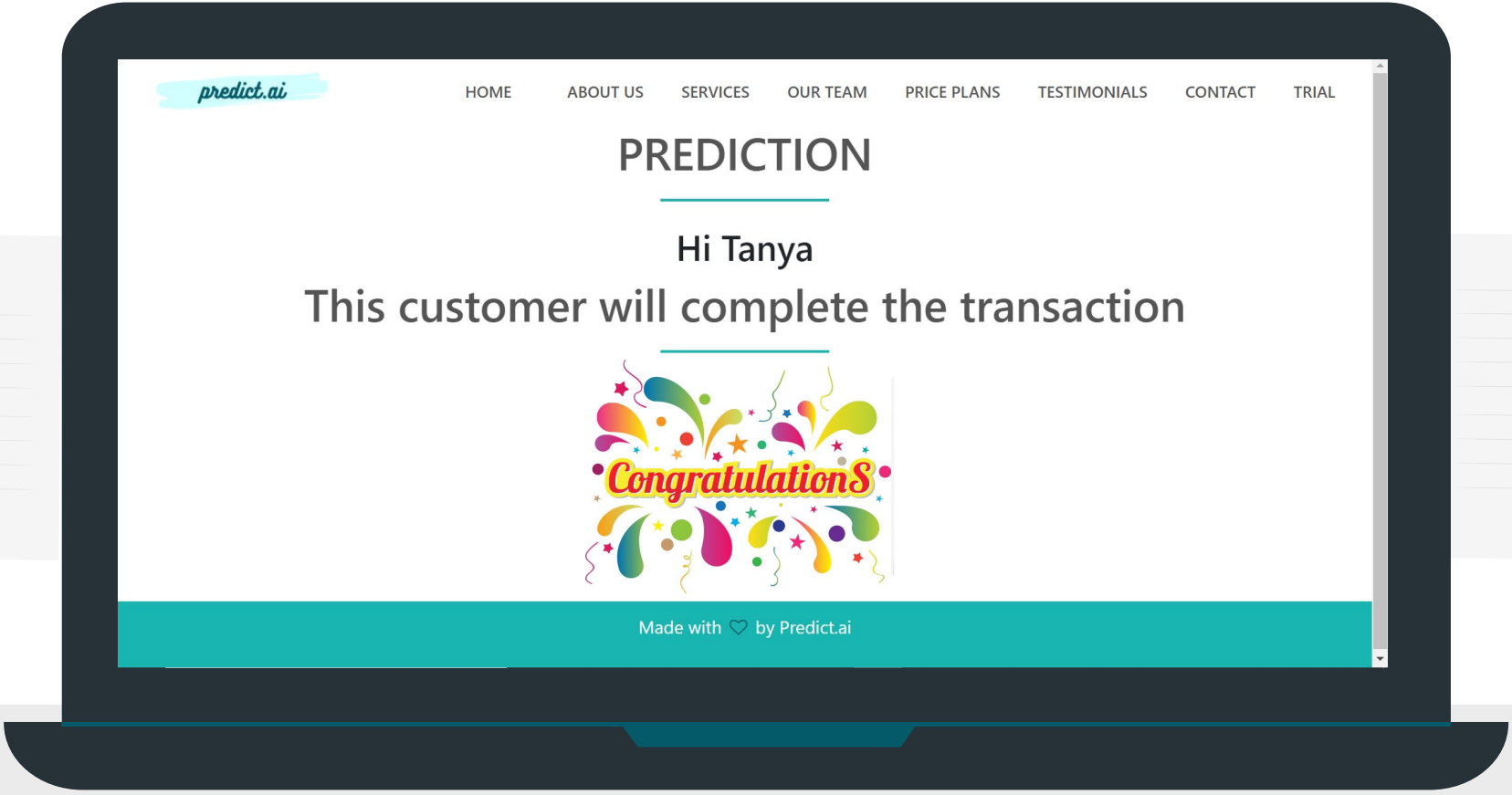
SNEAK PEEK – DATA OUTPUT



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BUSINESS MODEL

We plan to have a 3-tier business plan, with a subscription model depending on whether the client is established company, a small business or an individual doing hobby projects.

FREE

Hobby Project Tier

We have learnt a lot about analytics through our journey, and would like to help individuals, specially students

₹3k/month

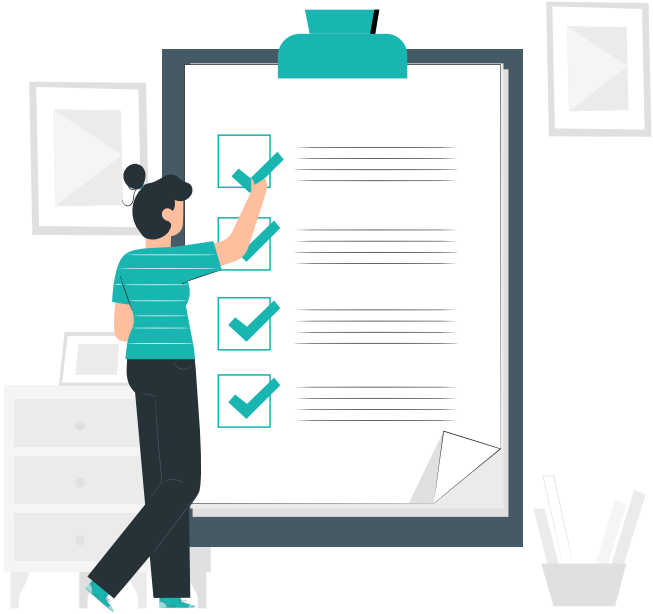
Start-Up Tier

Small businesses have less resources for analytics, and they will form a major segment of our customers

₹30k/month

Business Tier

Established e-commerce companies usually have internal teams for this analysis, they will be interested in comparing ML models



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BUDGET EXPENSES

₹30,000

Marketing

Marketing to e-commerce platforms through appropriate channels

₹10,000

Web Development

A/B Testing and deploying the website and predict.ai platform

₹20,000

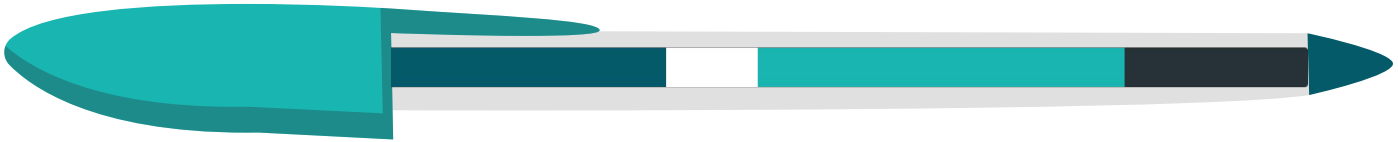
Customer Service

Setting up a team and ensuring client needs are met by providing 24/7 service

₹10,000

Data Modelling

Collecting data and improving the accuracy of our model



₹70,000

Estimated expenditure for setting up our business

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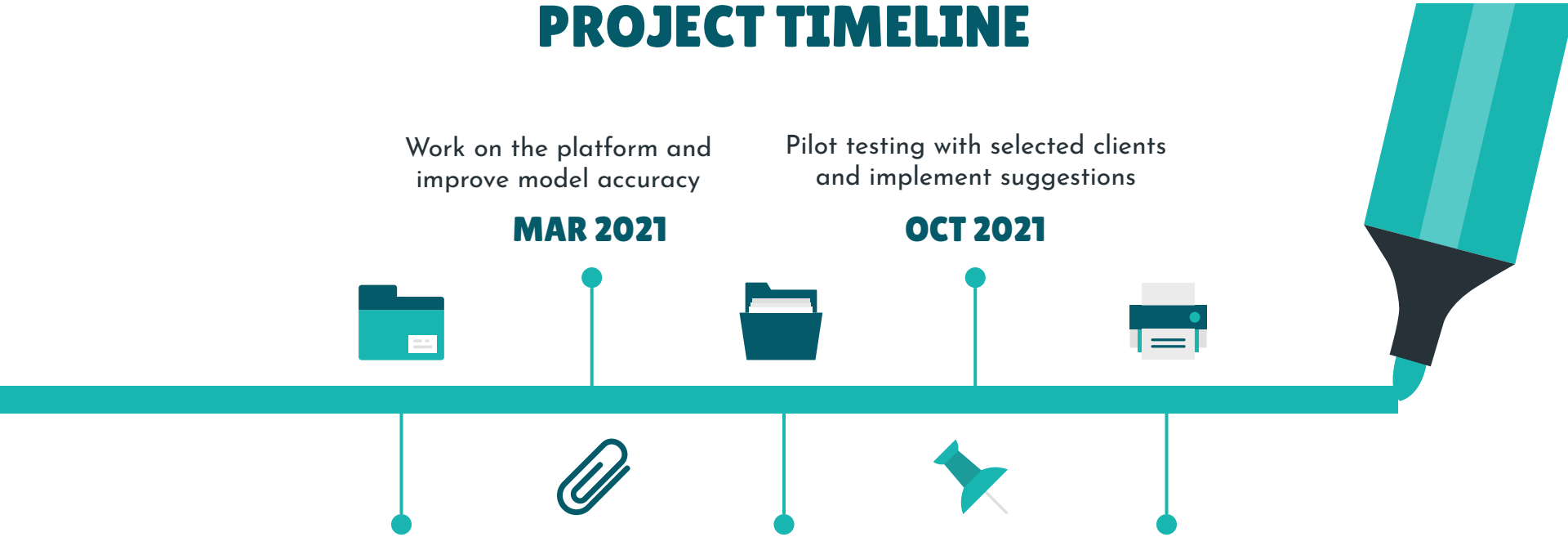
PROJECT TIMELINE



DEC 2020

Presented as course project. ML model and website ready

JUN 2021

Pitch to small startups and marketing efforts

2022 ONWARDS

Plan for official launch

MAR 2021

Work on the platform and improve model accuracy

OCT 2021

Pilot testing with selected clients and implement suggestions

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OUR TEAM

Tanya Gupta

Web Developer, UI/UX Designer

Srihit Bharadwaj

Data Scientist

Mudit Sand

Marketing Head

Jaykumar Gupta

Business Lead

Bavish K

Machine Learning Researcher

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THANKS

Do you have any questions?