PORTOFOLIO

By Dillan Engelbert Hendrarto

PORTOFOLIO

1. Ecommerce DataAnalysis — github
2. Photo to Painting — github
3. PersonaProfiler — github
4. Smart Kos — github
5. Batman simulator — github
6. University Room Booking — github
7. From Clustering to Classification — github

INSIGHTHUB: ECOMMERCE DATA ANALYSIS

InsightHub is an interactive dashboard designed to help e-commerce businesses analyze customer data, sales trends, and payment patterns. The project enables businesses to make data-driven decisions through informative visualizations.

TECHNOLOGY

PYTHON & STREAMLIT

Processed and analyzed datasets from e-commerce platforms, , creating insightful dashboards.

LOOKER STUDIO

Designed engaging dashboards and reports to deliver actionable insights.

ALTAIR, PLOTLY, MATPLOTLIB

Visualized data to provide clear and actionable insights.

IMPACT

InsightHub empowers businesses with actionable insights by uncovering patterns in customer behavior, payment preferences, and sales performance. This tool enhances decision-making processes, driving improved marketing strategies and operational efficiency in e-commerce.

LEARNING OUTCOMES

I honed my skills in data processing and visualization by utilizing Python and libraries like Altair, Plotly, and Matplotlib. Building the dashboard in Streamlit also enhanced my ability to create interactive and user-friendly applications tailored to solving real-world business problems.

Streamlit

Filter Data berdasarkan Tanggal

Start Date

2018/01/01

End Date

2018/10/31

commerce

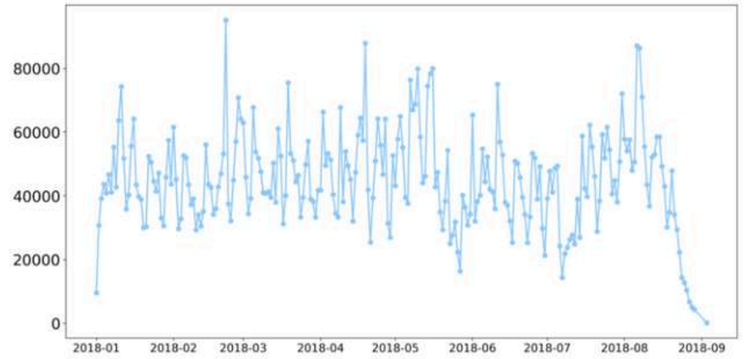
Analisis Penjualan Harian

Total Pesanan

62467

Total Pendapatan

$10,844,616.68



Pelanggan Terbaik Berdasarkan Parameter RFM

Average Recency (month)

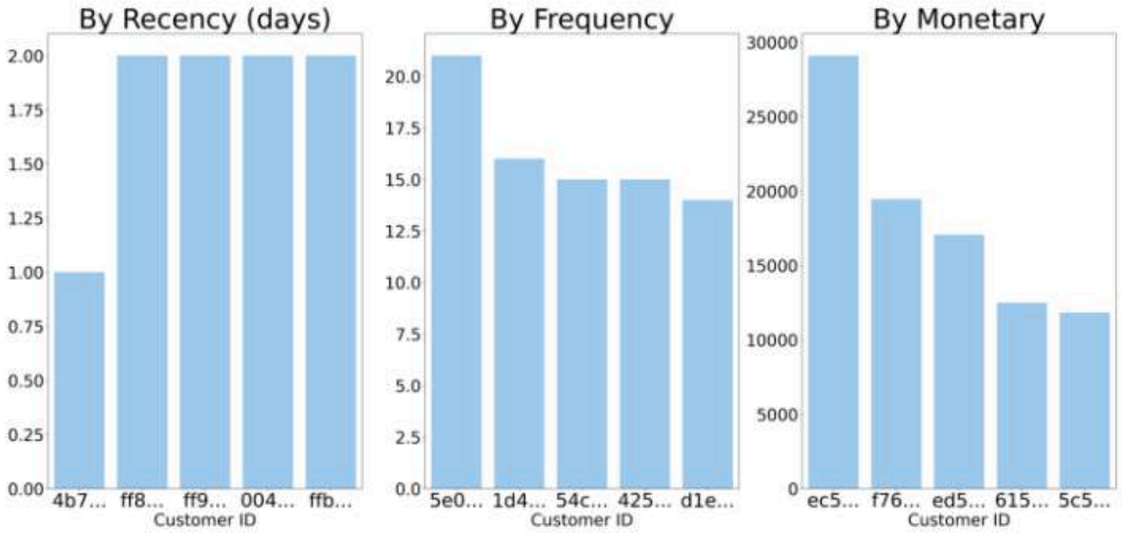
5.68

Average Frequency

1.18

Average Monetary

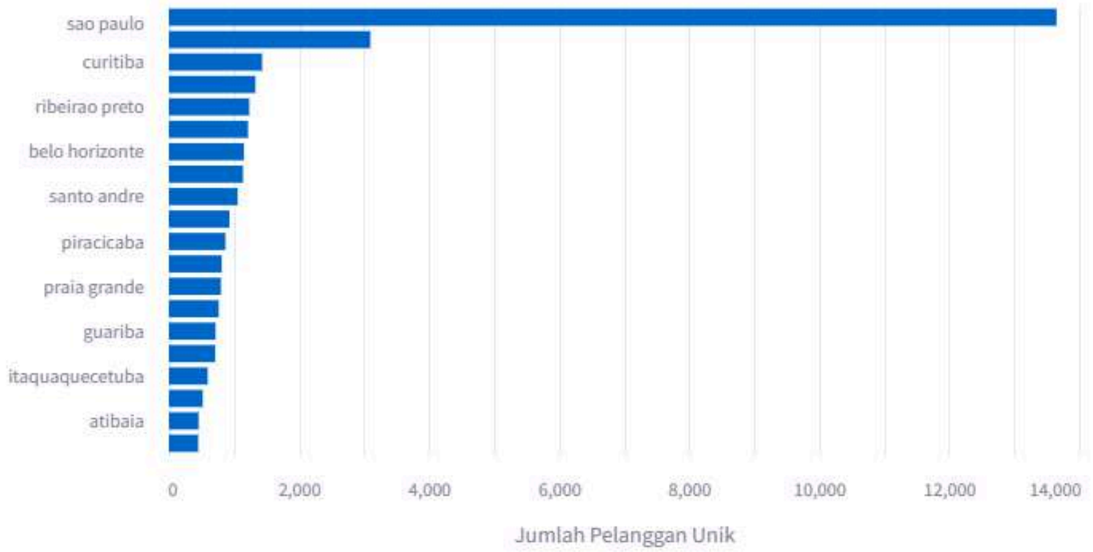
$204.62



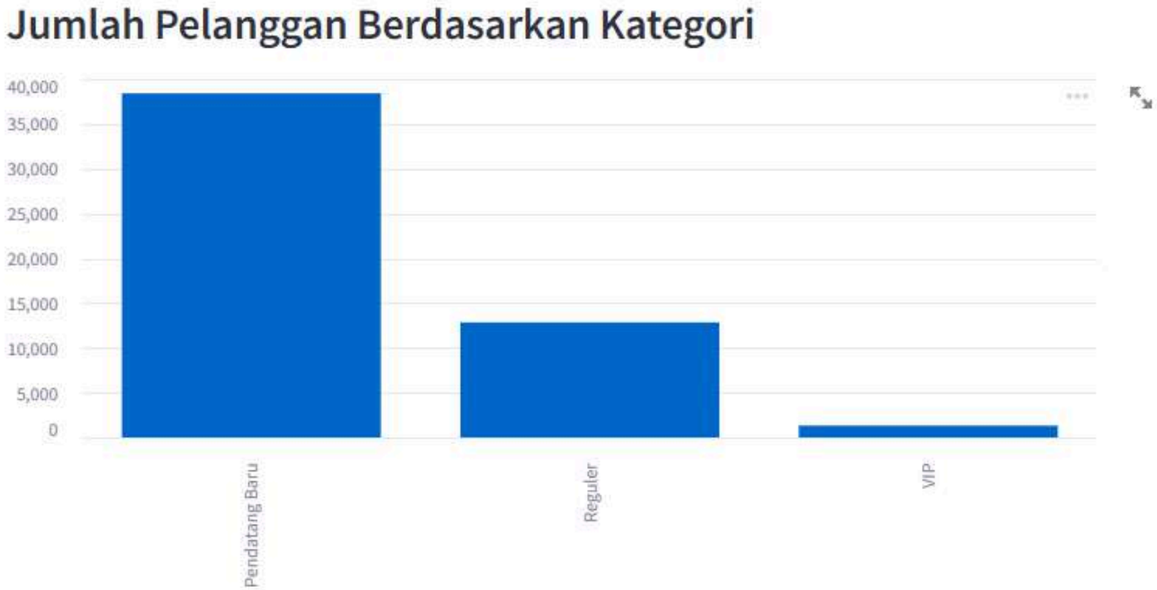
Analisis Penjualan Bulanan

nalisis Lokasi Penjual

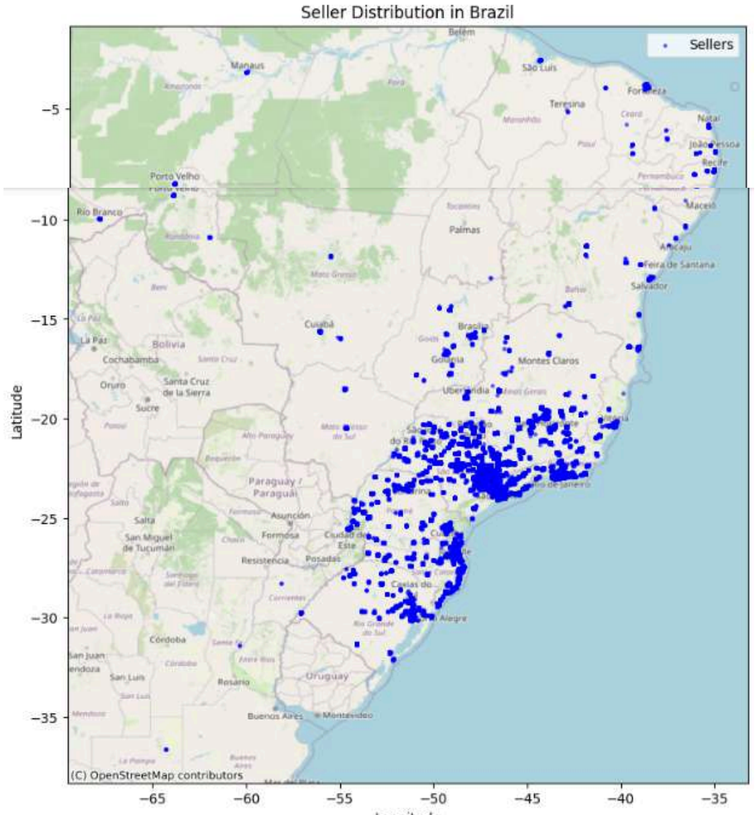
20 Kota dengan Jumlah Pelanggan Unik



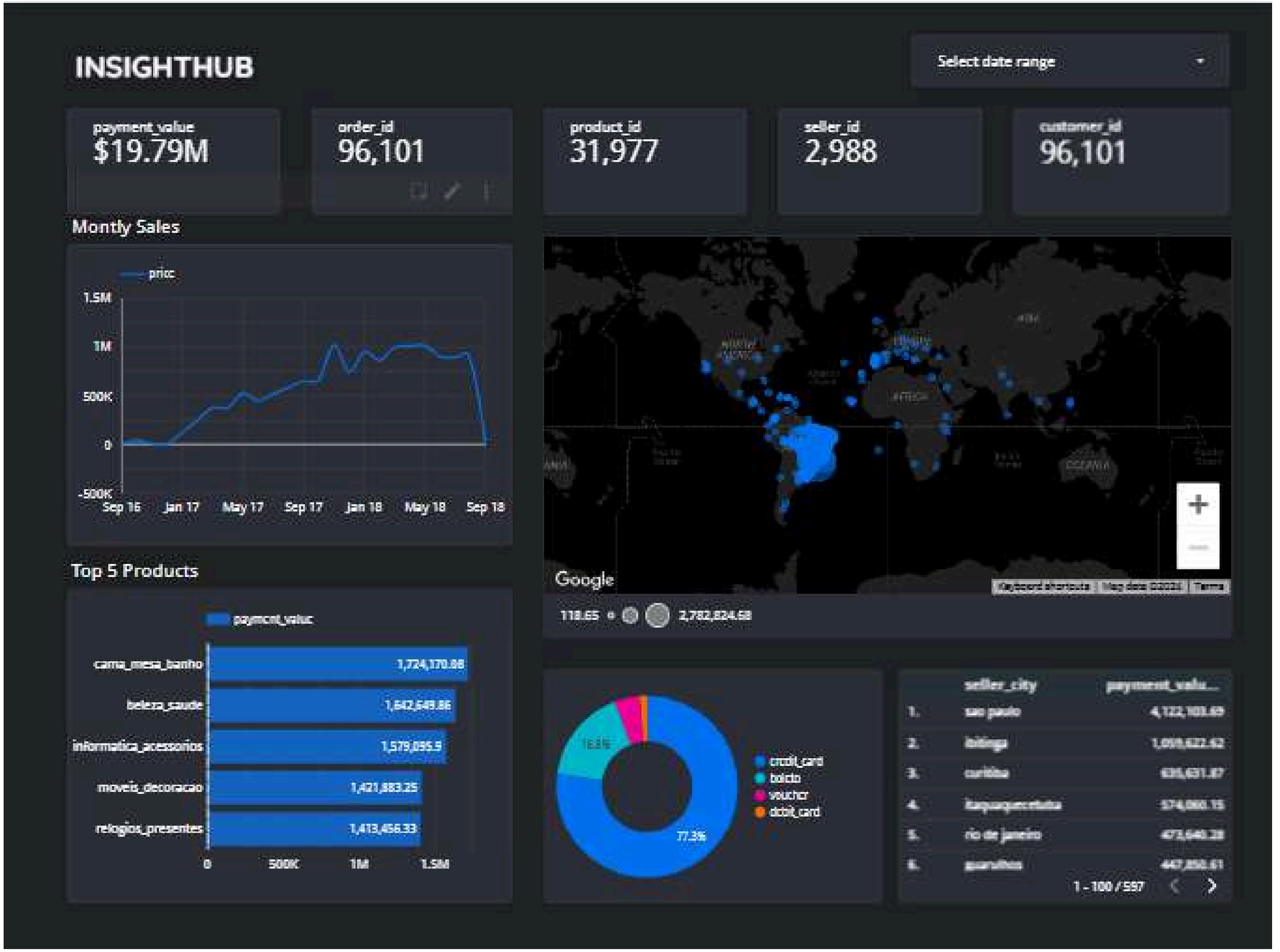

Jumlah Pelanggan Unik Berdasarkan Negara Bagian Penjual
SP
MG
SC
DF
PE
BA
MT
RN
MS
RO
PA
Negara Bagian
0
4,000
8,000
12,000
16,000
20,000
24,000
28,000
32,000
36,000
40,000
Jumlah Pelanggan Unik


Jumlah Pelanggan Berdasarkan Kategori
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
Pendatang Baru
Reguler
VIP


Kategori Produk dengan Penjualan Tertinggi di Setiap Negara Bagian
Kategori Produk Teratas Berdasarkan Penjualan di Setiap Negara Bagian
SP
RJ
PE
BA
RS
CE
ES
MT
MS
SE
PA
Negara Bagian
0
200,000
400,000
600,000
800,000
Total Penjualan
product_category_name
automotivo
beleza_saude
cama_mesa_banho
esporte_lazer
industria_comercio_e_n...
informatica_acessorios
moveis_decoracao
relogios_presentes
telefonia
utilidades_domesticas


Seller Distribution in Brazil
Sellers
Latitude
−5
−10
−15
−20
−25
−30
−35
−65
−60
−55
−50
−45
−40
−35
(C) OpenStreetMap contributors

Looker Studio



CANVAX: PHOTO TO PAINTING

Canvax is a web-based application that uses AI technology to transform ordinary photos into paintings in the styles of famous artists like Monet, Van Gogh, and Cézanne. The app combines art and technology, offering users a unique digital art experience.

TECHNOLOGY

TORCH CYCLEGAN

Implemented for style transfer to generate paintings in various artistic styles.

NESTJS

Backend to handle image processing and manage API endpoints.

HTML, CSS, JAVASCRIPT

Designed and developed the frontend for an intuitive user interface.

IMPACT

Canvax bridges the gap between technology and creativity by enabling users to easily create personalized artwork, boosting interest in AI-driven solutions for the arts. It demonstrates how AI can enhance digital creativity, opening up opportunities in industries like graphic design, custom art, and digital media.

LEARNING OUTCOMES

I gained proficiency in using Torch CycleGAN for artistic style transfer and strengthened my expertise in full-stack development with NestJS and frontend technologies. Additionally, I learned how to effectively integrate AI workflows with a user-friendly web interface to deliver impactful solutions.

CanvaX

Upload | Sign out

Welcome to CanvaX: Transform Your Images into Timeless Painting

CanvaX is a unique and innovative platform designed to transform your images into stunning digital paintings, breathing new artistic life into your creations. Whether you're a designer, artist, or simply someone who appreciates the beauty of art, our website provides an effortless way to merge your digital creativity with the charm of traditional painting styles.

Digital painting is a modern art form that simulates traditional painting techniques using digital tools, creating vibrant and intricate artworks that reflect the depth and texture of hand-painted pieces. With CanvaX, you can easily turn your photos into beautiful, painting-like masterpieces that capture the essence of classic art styles.

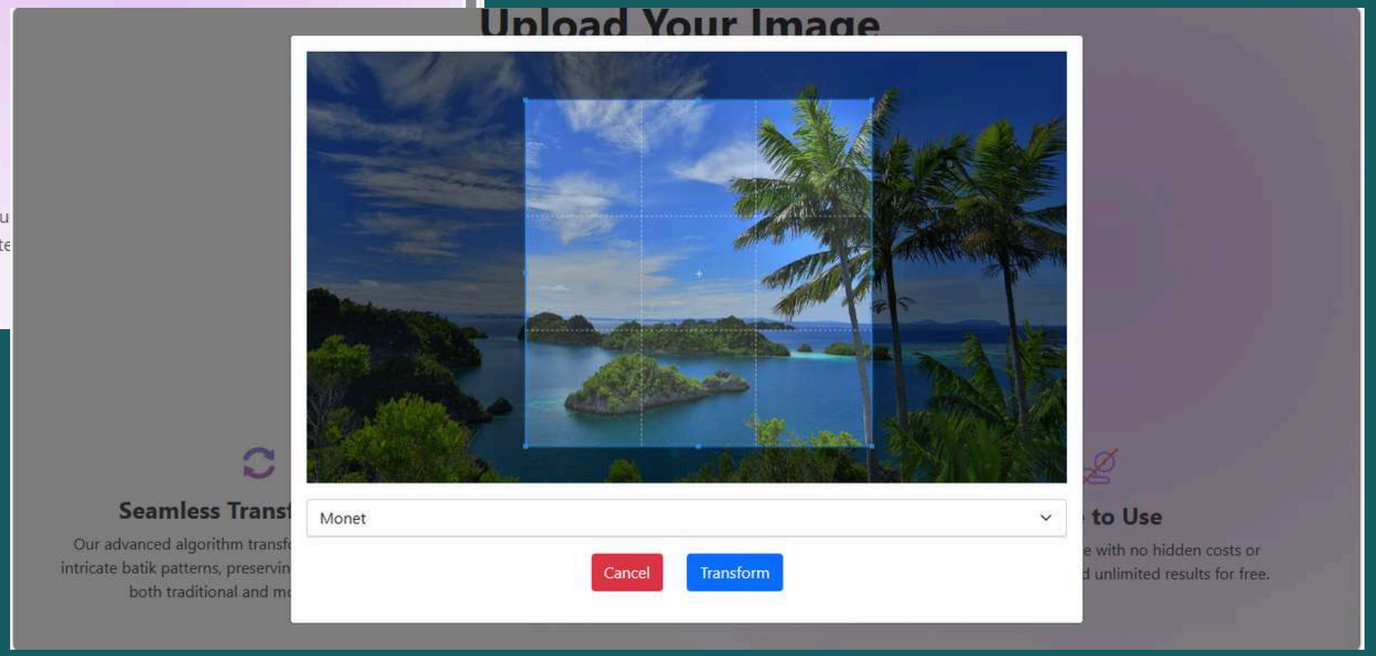
Get started

HOMEPAGE

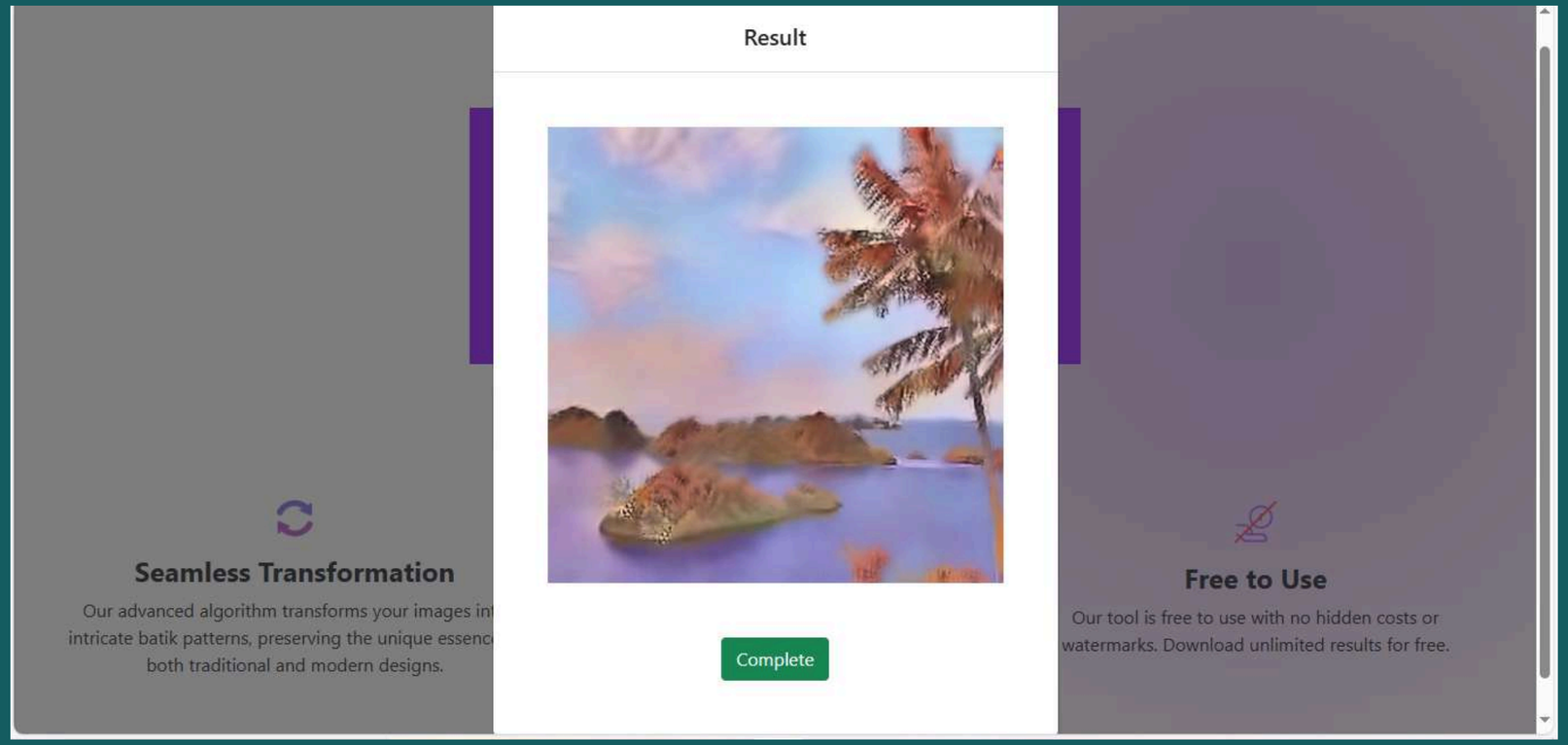
SIGN IN / SIGN OUT

UPLOAD PAGE

CROP TO TRANSFORM



MONET RESULT



SMART KOS
Management System

SUMMARY

Digital platform to efficiently **manage student housing** (kos). The system was designed to **assist kos owners** in managing **resident data, payments, and facilities.** Key features I worked on include **user management, payment processing, and data reporting.**

IMPACT

The **system** is expected to **enhance kos management efficiency,** reduce administrative errors, and provide accurate and timely information to kos owners.

TECHNOLOGY

PHP: Backend system to manage user operations, payment processing, and facility management.
MySQL: Database schema to handle resident, payment, and facility data efficiently.
HTML, CSS, JavaScript, Bootstrap: Developed the frontend using Bootstrap to create a responsive and user-friendly interface for administrative tasks.
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learning outcomes

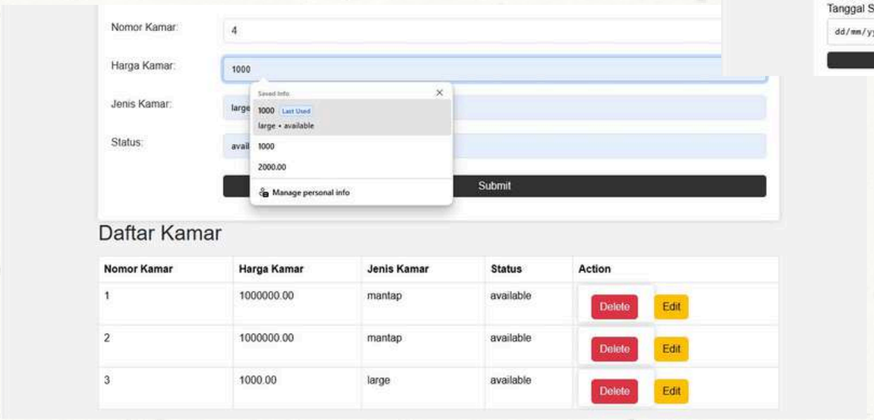
- Gained practical experience in web-based software development and database management.
- Improved skills in designing intuitive user interfaces
- Developed problem-solving through testing and debugging

Admin Side

images

pick booking room

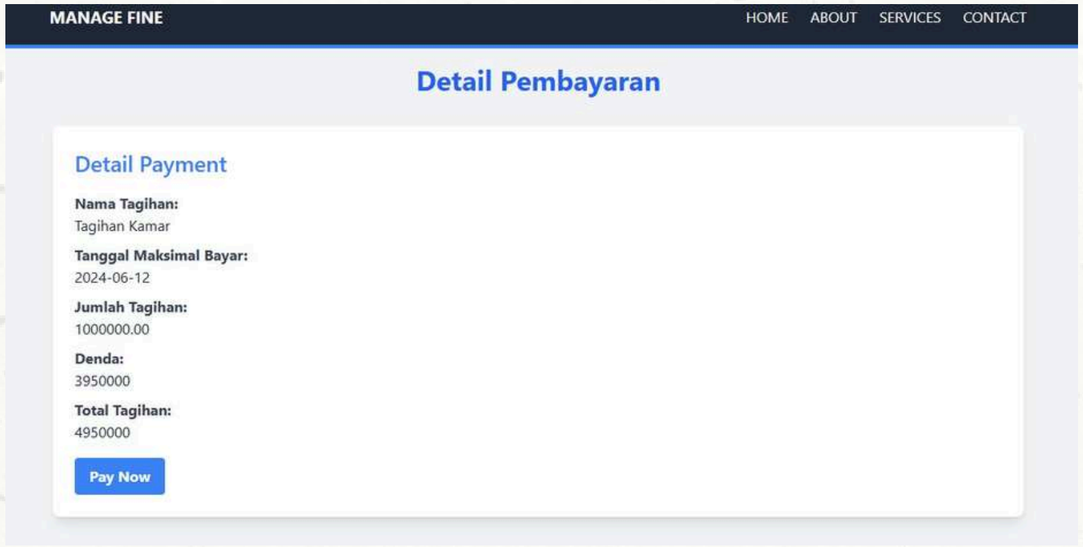
manage residents



manage fines

User Side

images Manage Bills



BATMAN-SIMULATOR

3D simulator using Three.js, allowing users to explore a virtual Gotham City with dynamic cityscape interactions. The project included features enabling users to assume the role of Batman. My primary focus was on designing and implementing the camera control logic and the core concepts of the simulation, ensuring an immersive and interactive user experience.

Batman gotham simulator- YouTube

LEARNING OUTCOMES

I gained practical experience in camera systems, lighting techniques, collision detection, and cinematography. I mastered various camera controls and applied lighting models to create realistic environments, enhancing gameplay and visual appeal.

IMPACT

The Gotham Batman Simulator enhances user engagement with its advanced camera controls, dynamic lighting, and realistic collision detection, creating an immersive Gotham City experience. It sets a new standard for interactive simulations with its sophisticated cinematographic features.

TECHNOLOGY

JAVASCRIPT

Programming language for building core game mechanics, handling user input, and controlling game logic.

THREE.JS

3D JavaScript library used to render and display the Gotham City environment, handle animations, and manage camera controls.

CANNON.JS

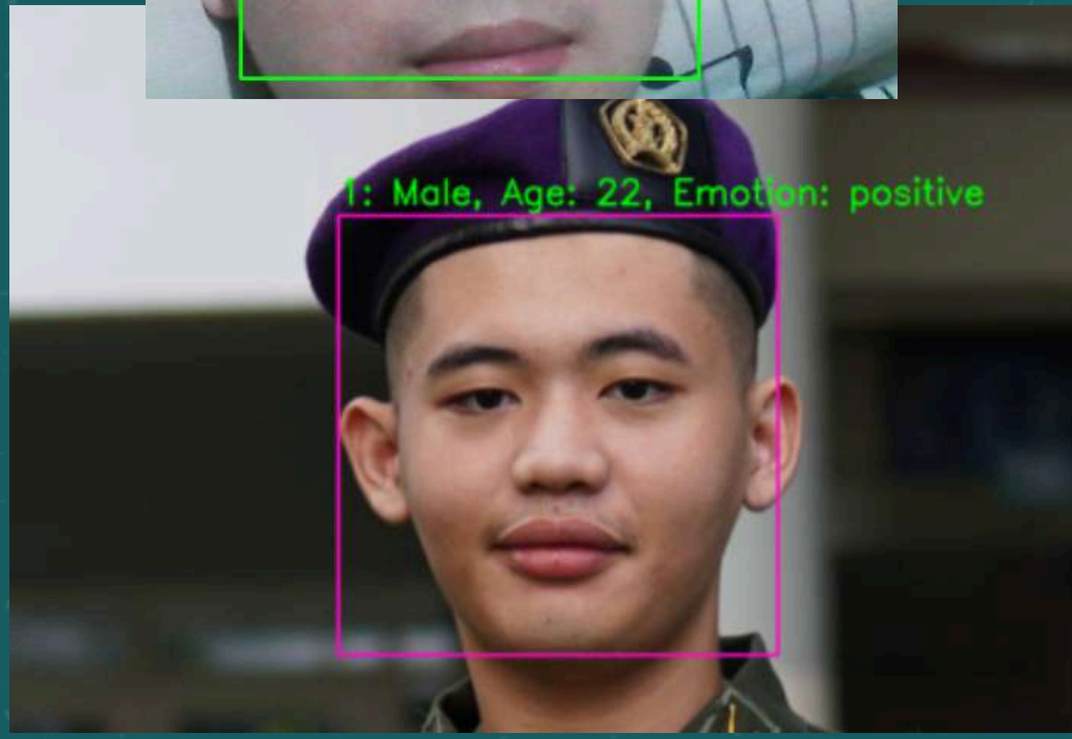
For physics and collision detection to provide realistic interactions with the game environment.

WEBGL

For rendering 3D graphics directly in the browser without requiring external plugins.

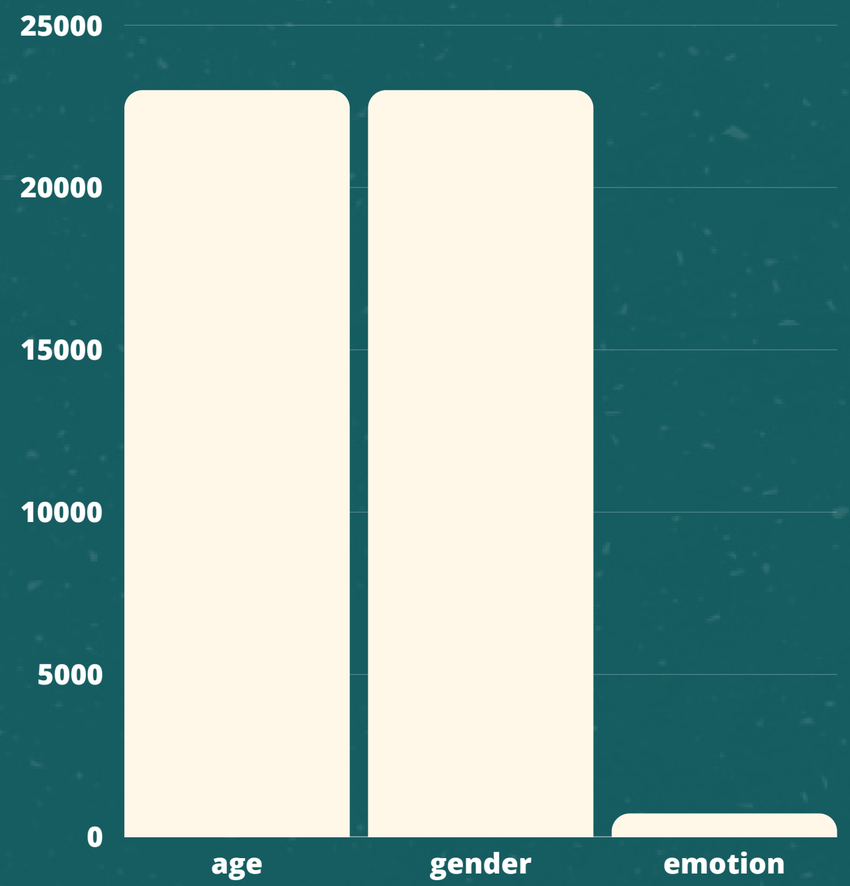
PROJECT PERSONAPROFILER

an AI-powered system using Convolutional Neural Networks (CNN) and TensorFlow dan Python to accurately detect age, gender, and emotion from facial images. This system was aimed at empowering businesses to optimize revenue by gaining valuable insights into customer demographics and sentiment.



THE DATA

UTKFace dataset consisting of 23,000 images, which provided a diverse range of faces with annotated age and gender labels. For emotion recognition, we employed the CK+48 dataset with 720 images, which included various facial expressions representing different emotional states.



TECHNOLOGY

PYTHON

Programming language for implementing the core AI system and data processing pipelines.

TENSORFLOW

Machine learning framework used to design and train a custom convolutional neural network (CNN) for image analysis and prediction.

KERAS

High-level neural networks API (integrated with TensorFlow) used to build and fine-tune the model for optimal accuracy.

OPENCV

Used for image preprocessing and feature extraction from input data.

IMPACT

The AI system provided businesses with actionable insights into customer demographics and emotions, enabling more targeted marketing strategies and improved customer engagement. This data-driven approach helps optimize revenue by aligning business strategies with customer profiles and sentiment.

LEARNING OUTCOMES

I gained expertise in managing large datasets, designing CNN architectures, optimizing model performance, and deploying machine learning solutions. I also learned how AI can provide valuable business insights into customer demographics and emotions.

UNIVERSITY ROOM BOOKING

A comprehensive room booking system tailored for university use. This system provides an efficient platform for administrators to manage user accounts, room details, and reservations, while allowing users to easily book rooms and track their bookings

TECHNOLOGY

The system was developed using PHP for server-side logic and MySQL for database management. The frontend was built with HTML and CSS for structure and styling, with Bootstrap ensuring a responsive design. JavaScript with jQuery was used for dynamic content updates and smoother interactions, while AJAX was employed to update content without page reloads. The system was tested and deployed using local server environments like XAMPP/WAMP.

IMPACT

The system significantly improves administrative efficiency by automating user and room management, and simplifies the booking process for users, leading to more organized room usage and reduced manual errors.

LEARNING OUTCOMES

FULL-STACK DEVELOPMENT

Gained hands-on experience in designing both frontend and backend components, enhancing my skills in building comprehensive web applications.

DATABASE MANAGEMENT

Developed expertise in structuring and managing databases, crucial for handling user and room data efficiently.

USER INTERFACE DESIGN

Improved my ability to create intuitive and user-friendly interfaces, ensuring a seamless experience for both admins and users.

PROBLEM-SOLVING

Strengthened my skills in troubleshooting and integrating different system components, ensuring a robust and functional application.

REGISTER ADMIN

Nama Lengkap

NIP

Password

Tambah

Id	NIP	Full Name	Email
1	d12450982	DummyAdmin	Admin123@gmail.com

BAN DATA USERS

KEMBALI

NRP	PASSWORD	NAMA	EMAIL	STATUS_BAN	BAN ACTION
c14220302	misaelyoih	Misael Yoih	c14220302@john.petra.ac.id	0	
b12	budi123	Budi Doremi	b12@john.petra.ac.id	0	
1	1	123	1@john.petra.ac.id	0	
12	12	Dillan Engelbert Hendrarto	12@john.petra.ac.id	1	BAN USER

PinjamRuangan | Welcome, DummyAdmin

Daftar Ruangan | Daftar Peminjaman Admin | Add Ruangan | Add Admin | Ban User | Logout

P205

Ruang Kelas

Kapasitas Ruangan: 30

Pinjam Ruang | Edit Ruang

P203

Ruang Kelas

Kapasitas Ruangan: 50

Pinjam Ruang | Edit Ruang

P204

Ruang Kelas

Kapasitas Ruangan: 80

Pinjam Ruang | Edit Ruang

PINJAM RUANG

Kode Ruang

AuditW

Tanggal

dd/mm/yyyy

Mulai

hhmm

Selesai

hhmm

Acara

Nama acara

Keterangan

PINJAM

DATA SCIENCE: FROM CLUSTERING TO CLASSIFICATION

The **Data-Science-From-Clustering-to-Classification** project utilizes machine learning techniques, specifically K-means clustering and Random Forest classification, implemented in Python with Scikit-learn and Pandas. The project analyzes customer data by clustering similar customers to identify segments and then classifying these segments to predict behavior. This integration provides businesses with actionable insights, enhancing customer targeting and optimizing marketing strategies for improved engagement and revenue.

TECHNOLOGY

RANDOM FOREST & KNN

Implemented for classifying customer segments to predict behavior and enhance targeting strategies.

K-MEANS CLUSTERING

Utilized for grouping similar customers based on their characteristics to identify distinct segments.

SCIKIT-LEARN

Employed for machine learning algorithms, including clustering and classification.

MATPLOTLIB AND SEABORN

Utilized for data visualization to present insights and results effectively.

IMPACT

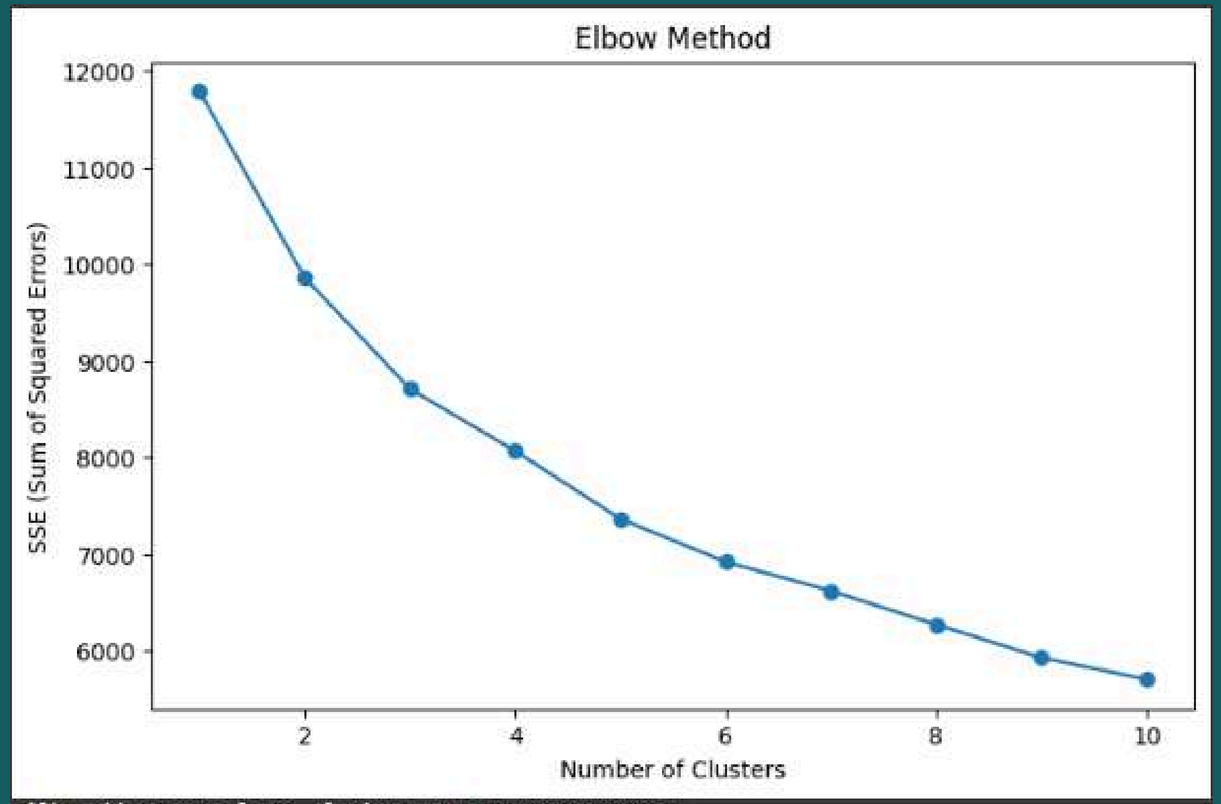
Provided businesses with actionable insights into customer behavior and segmentation, enabling more targeted marketing strategies and improved customer engagement. This data-driven approach helps optimize revenue by aligning marketing efforts with distinct customer profiles and preferences.

LEARNING OUTCOMES

gained expertise in applying machine learning techniques, including K-means clustering and Random Forest and KNN classification, to analyze and interpret customer data. Developed skills in data preprocessing, model evaluation, and visualization, enhancing ability to derive meaningful insights from complex datasets. Learned how integrating clustering and classification can drive effective business strategies.

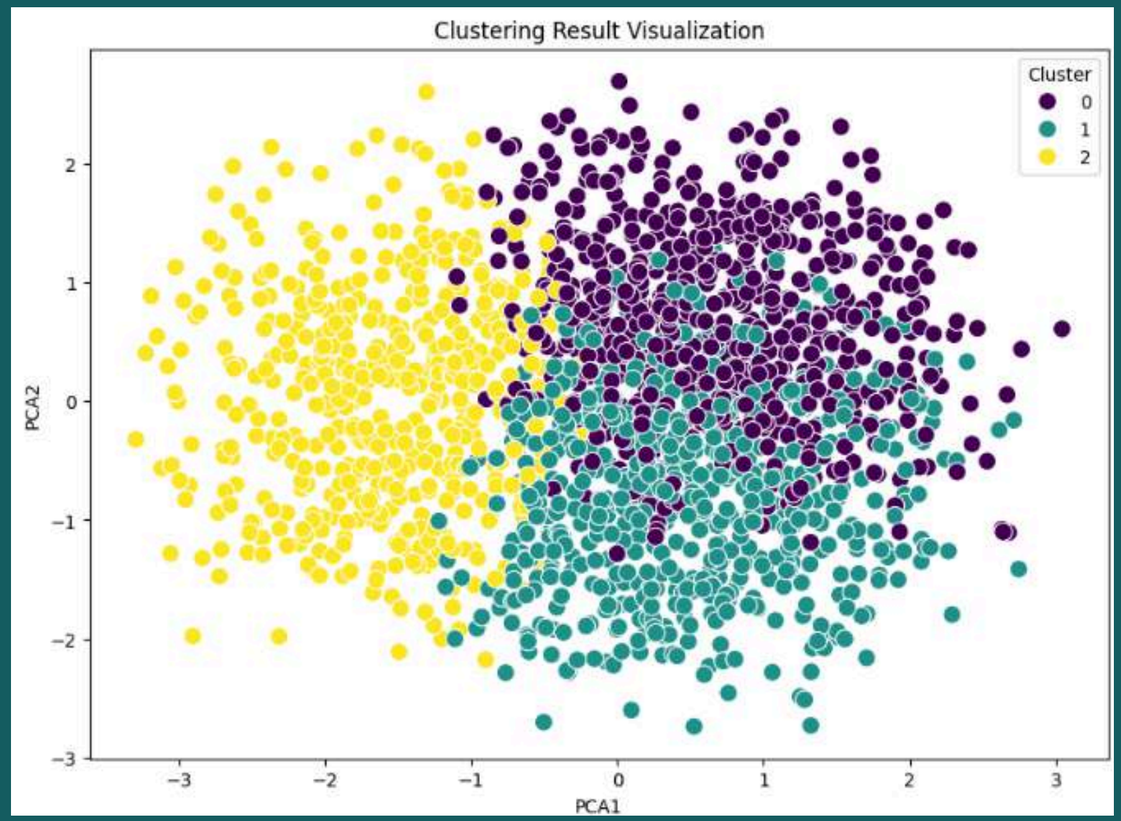
CLUSTERING K-MEANS

EVALUATION




```
Silhouette Score for 2 clusters: 0.15854966648730903
Silhouette Score for 3 clusters: 0.15298168596049438
Silhouette Score for 4 clusters: 0.14132716985660593
Silhouette Score for 5 clusters: 0.1486333924089746
Silhouette Score for 6 clusters: 0.14694884427472338
Silhouette Score for 7 clusters: 0.1343533601817173
Silhouette Score for 8 clusters: 0.14184413353679376
Silhouette Score for 9 clusters: 0.1480714942633974
```

VISUALIZATION

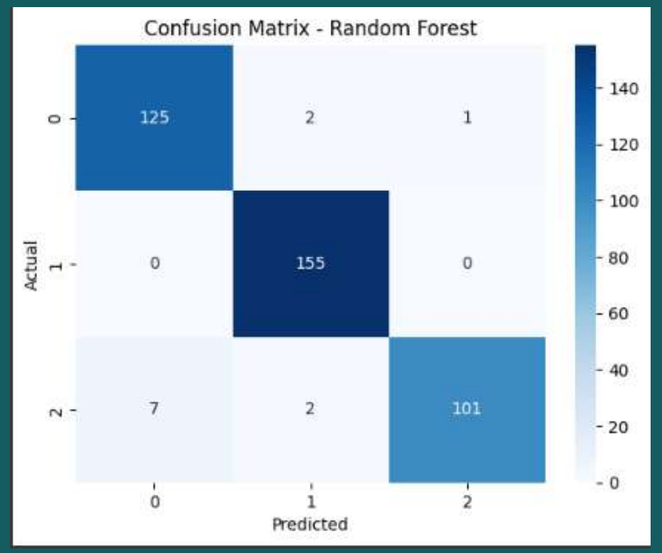


CLASSIFICATION

EVALUATION

VISUALIZATION

RANDOM FOREST

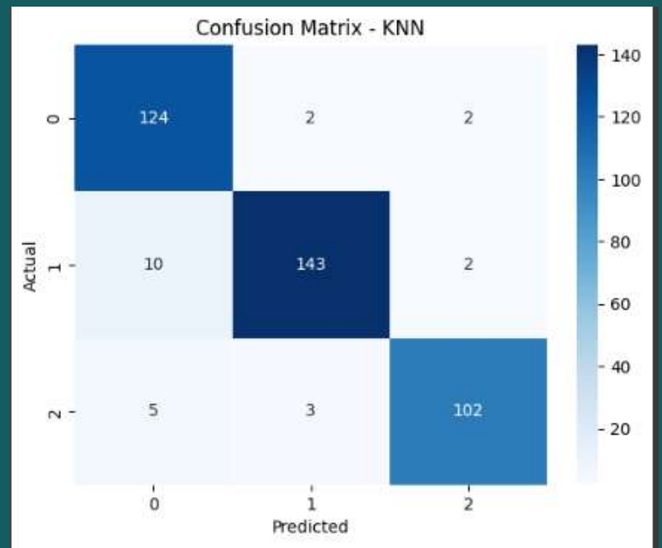



```
Accuracy: 0.9694656488549618
F1 Score: 0.9692461107853598
Classification Report:
              precision    recall  f1-score   support

           0       0.95      0.98      0.96       128
           1       0.97      1.00      0.99       155
           2       0.99      0.92      0.95       110

    accuracy                           0.97       393
   macro avg       0.97      0.96      0.97       393
weighted avg       0.97      0.97      0.97       393
```

KNN




```
Accuracy: 0.9414758269720102
F1 Score: 0.9418492121991741
              precision    recall  f1-score   support

           0       0.89      0.97      0.93       128
           1       0.97      0.92      0.94       155
           2       0.98      0.94      0.96       110

    accuracy                           0.94       393
   macro avg       0.94      0.94      0.94       393
weighted avg       0.94      0.94      0.94       393
```

THANK YOU!