PROPOSAL KERJA PRAKTEK

Oleh:

Ahmad Zakaria 123220077

PROGRAM STUDI INFORMATIKA
JURUSAN INFORMATIKA
FAKULTAS TEKNIK INDUSTRI
UNIVERSITAS PEMBANGUNAN NASIONAL "VETERAN"
YOGYAKARTA
2024

LEMBAR PENGESAHAN
PROPOSAL KERJA PRAKTEK

Lokasi Kerja Praktek	: PT Dicoding
Lama Kerja Praktek	: 4 Bulan
Tanggal Pelaksanaan	: 6 September - 31 Desember 2024

Yogyakarta, 13 Februari 2025

Mahasiswa 1

Ahmad Zakaria
NIM. 123220077

Menyetujui,

Dosen Koordinator Kerja Praktek

Simon Pulung Nugroho, S.Kom., M.Cs
NIDN. 0518028401

LATAR BELAKANG

Pasar properti di Yogyakarta terus mengalami peningkatan harga yang signifikan, membuat banyak individu kesulitan menemukan hunian yang sesuai dengan kebutuhan dan anggaran mereka. Keterbatasan informasi yang mudah diakses dan relevan semakin memperumit proses pencarian rumah yang ideal. Sistem pencarian properti yang tersedia saat ini masih kurang optimal dalam menyajikan rekomendasi yang benar-benar sesuai dengan preferensi pengguna, sehingga proses pencarian menjadi panjang dan melelahkan.

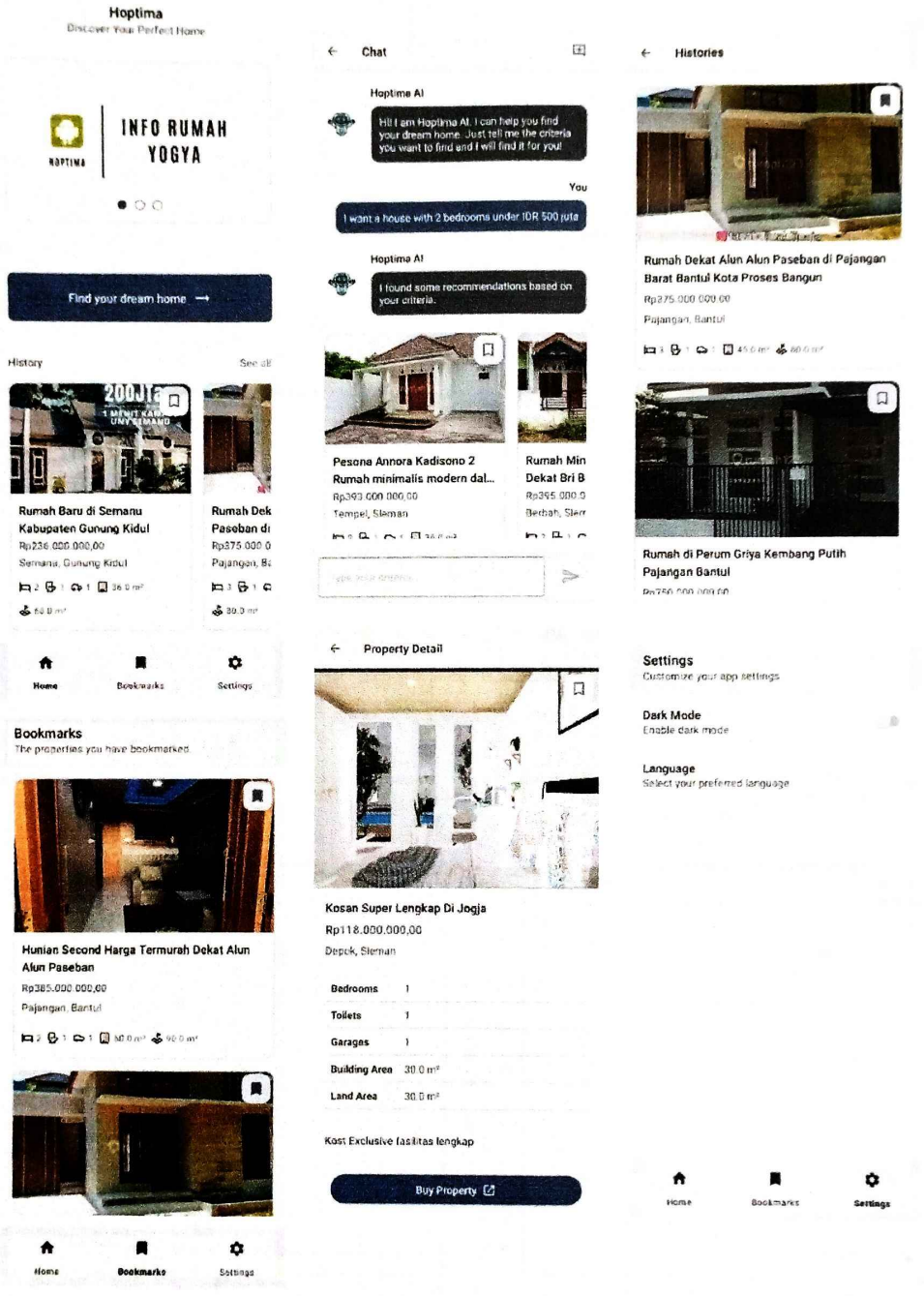
Untuk mengatasi permasalahan ini, kami mengembangkan HOPTIMA (House Optimized Property Tool for Individual Matching & Assistance), sebuah aplikasi berbasis Machine Learning yang bertujuan memberikan rekomendasi properti yang lebih akurat dan efisien. Dengan menerapkan model rekomendasi berbasis Retrieval-Augmented Generation (RAG), HOPTIMA dapat mengolah data properti secara cerdas dan menyajikan hasil yang lebih relevan berdasarkan preferensi pengguna. Model ini dikembangkan menggunakan TensorFlow dengan pelatihan pada dataset lebih dari 6.000 properti.

Proses pemrosesan data dalam HOPTIMA mencakup pembersihan teks menggunakan Sastrawi untuk meningkatkan pemahaman bahasa Indonesia serta normalisasi fitur numerik guna memastikan akurasi model. Model Machine Learning yang digunakan memungkinkan sistem untuk menganalisis preferensi pengguna berdasarkan faktor-faktor seperti lokasi, jumlah kamar tidur, kamar mandi, lahan parkir, serta kisaran harga yang diinginkan.

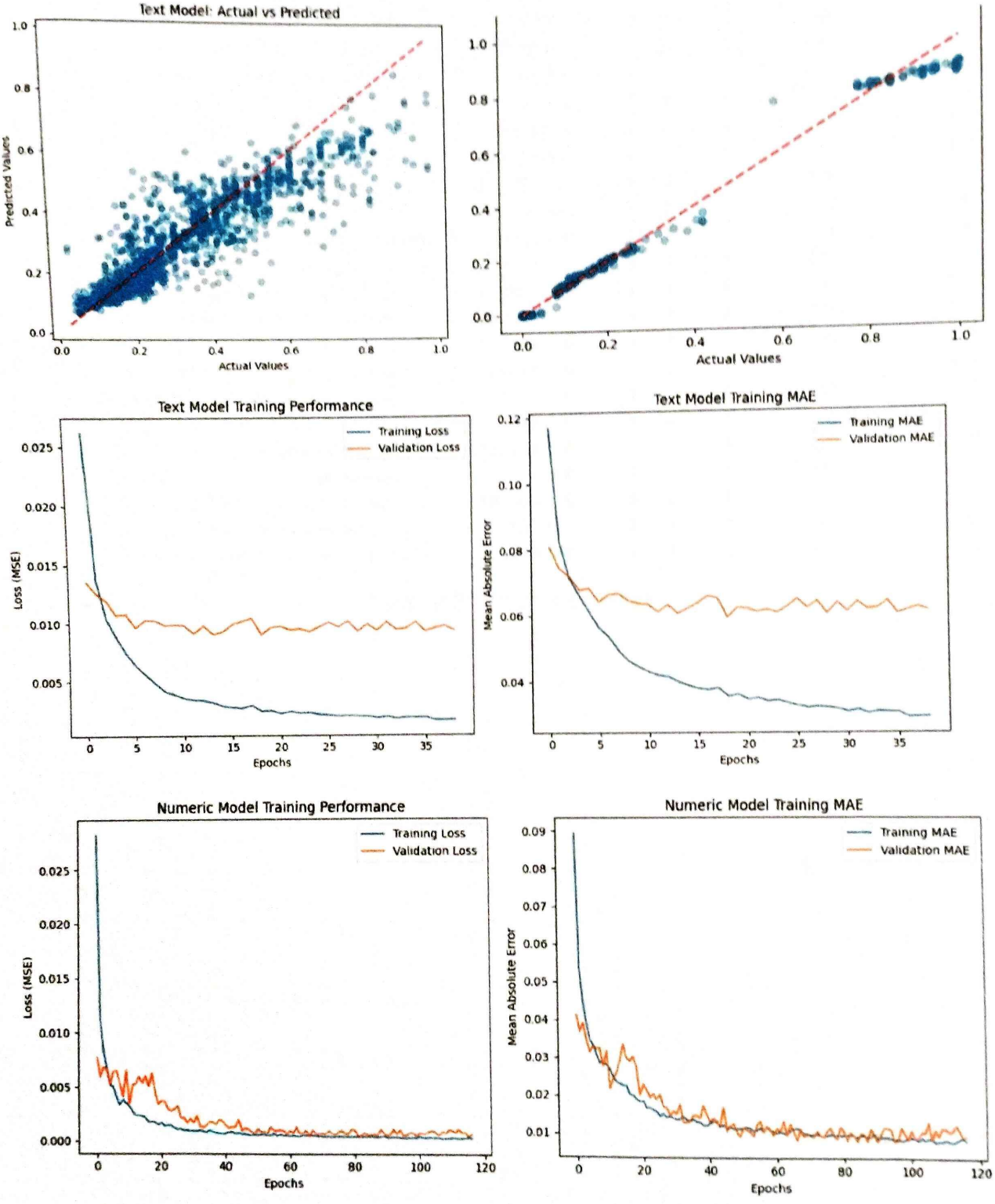
Selain itu, backend aplikasi dikembangkan menggunakan Python (Flask) untuk menangani permintaan API dan manajemen data secara efisien. Data hasil pemrosesan model disimpan dalam Firestore, sementara Cloud Run digunakan untuk melakukan deployment model secara serverless, memungkinkan skalabilitas yang tinggi tanpa perlu infrastruktur server fisik. Pengujian API dilakukan menggunakan Postman guna memastikan sistem dapat berjalan dengan optimal.

Dengan memanfaatkan pendekatan berbasis Machine Learning, HOPTIMA menawarkan solusi yang lebih cerdas dan efektif dalam membantu masyarakat menemukan hunian yang sesuai dengan kebutuhan mereka. Sistem ini diharapkan dapat mempercepat proses pencarian rumah dan memberikan pengalaman yang lebih baik bagi pengguna dalam menemukan properti yang ideal di Yogyakarta.

LAMPIRAN



Gambar 1 : Tampilan aplikasi mobile hoptima



Gambar 2 : Nilai Prediksi Teks Model dan Numerik Model

Id_	Judul	Lokasi	Harga	Kamar	WC	Parkir	Luas_Tanah	Luas_Bangunan
1	Perumahan Bari	Ngaglik, Sleman	2400000000	2	3	1	126	100
2	Dijual Rumah De	Caturtunggal, Sleman	1700000000	3	3	2	200	130
3	Dekat Pusat Kot	Godean, Sleman	1630000000	3	3	1	108	100
4	Rumah Baru Cai	Purwomartani, Sleman	765000000	3	2	1	106	80
5	Promo Bulan De	Kasihan, Bantul	350000000	2	1	1	80	36
6	Rumah Mewah	Ngemplak, Sleman	1450000000	4	4	2	170	116
7	Rumah Hook Ne	Banguntapan, Bantul	2400000000	4	3	2	291	155
8	Rumah 2 Lantai	Sewon, Bantul	2500000000	4	2	2	168	112
9	Minimalis Mode	Sedayu, Bantul	710000000	2	1	1	72	50
10	Rumah Siap Hur	Wirobrajan, Yogyakarta	378000000	2	1	1	71	36
11	Perumahan Mo	Ngaglik, Sleman	1800000000	3	3	1	130	120
12	Perumahan Mo	Ngaglik, Sleman	1790000000	3	3	1	135	120
13	Rumah Mewah	Ngaglik, Sleman	9900000000	5	3	2	478	350
14	Rumah Mewah	Ngaglik, Sleman	1280000000	3	2	1	146	100
15	Murah Banget P	Ngaglik, Sleman	799000000	3	2	1	137	110
16	Dijual Rumah M	Ngaglik, Sleman	1270000000	3	2	1	147	100
17	Rumah Cantik 2	Sleman, Sleman	1600000000	5	4	2	166	147
18	Rumah Mewah	Ngaglik, Sleman	1350000000	3	3	1	125	88
19	Rumah Cantik Si	Sleman, Sleman	1650000000	3	3	1	125	113
20	Rumah Cantik D	Ngaglik, Sleman	1900000000	3	2	2	165	136
21	Rumah Minimal	Ngaglik, Sleman	535000000	2	1	1	80	36
22	Layout Keren Ef	Sleman, Yogyakarta	2200000000	4	4	1	145	123

Gambar 3 : Preview Dataset

bangkit

No : **BA24-2/LoA/XXIV-09/M297B4KY0240**
Re : **Letter of Acceptance**

Dear Ahmad Zakaria,

Following your registration and our subsequent rigorous selection process, we have the pleasure of informing you that **you have been confirmed as a Bangkit 2024 Batch 2 participant** with details as follows.

Name	: Ahmad Zakaria
NIM (Nomor Induk Mahasiswa)	: 123220077
Campus	: Universitas Pembangunan Nasional Veteran Yogyakarta
Study Program	: Informatika
Registered Supervisor	: Andiko Putro Suryotomo, S.Kom., M.Cs.
Bangkit ID	: M297B4KY0240
Learning Path	: Machine Learning
Program Period	: 6 September 2024 - 15 January 2025

Bangkit is a Google-led career readiness program held in collaboration with Goto, Tokopedia, and Traveloka. Affiliated with Studi Independen Bersertifikat - Kampus Merdeka, this program runs in the odd semester 2024.

We have selected you and all other participants with full confidence in your ability to be successful studying tech skills, soft skills, and English for professionals during his/her 900 study hours in Bangkit (September 2024 - January 2025). If you pass Bangkit graduation criteria, you will earn up to 20 university credits (SKS) and many other benefits that are unique to this program.

Congratulations! We look forward to your study progress and wish you all the best in your new study milestone in Bangkit.

2 September 2024
ID Program Manager
Bangkit Academy

bangkit

Mutiara Arumsari

KEMENTERIAN PENDIDIKAN, KEBUDAYAAN, RISET, DAN TEKNOLOGI

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MSIB

Kampus Merdeka INDONESIA JAYA

BA24/GRAD/XXIV-01/M297B4KY0240

Certificate of Completion

is proudly presented to

Ahmad Zakaria

10895773/123220077 - Universitas Pembangunan Nasional Veteran Yogyakarta

for successfully completing **Bangkit, specializing in Machine Learning.**

Bangkit is a Google-led academy designed to produce high-caliber technical talent for world-class Indonesian technology companies and startups.

Program Period : September 6, 2024 - December 31, 2024

January 10, 2025

Dora S.

Dora Songco

Product Marketing Manager
Google Indonesia

Google goto traveloka

KEMENTERIAN PENDIDIKAN, KEBUDAYAAN, RISET, DAN TEKNOLOGI

bangkit

MSIB

Kampus Merdeka
INDONESIA JAYA

STUDENT LEARNING ACHIEVEMENT

Bangkit ID : M297B4KY0240
Name : Ahmad Zakaria
University : Universitas Pembangunan Nasional Veteran Yogyakarta

Bangkit Completion : Full Graduate
Learning Path : Machine Learning
Capstone Status : Finished

No	Courses/Specialization/Activities	Learning Outcomes	Hours	Score (0-100)	Score Description
1	Google IT Automation with Python	By the end of the course, the student will be able to comprehend how to build Python programs and automate general tasks by writing Python scripts.	74	83.7	The student comprehends the knowledge of building Python programs and how to automate general tasks by writing Python scripts.
2	TensorFlow: Advanced Techniques Specialization	By the end of the course, the student will be able to apply advanced deep-learning techniques using TensorFlow.	74	90.9	Students can effectively apply various advanced techniques in deep learning using TensorFlow.
3	Data Analysis with Python	By the end of the course, the students will be able to grasp the key concepts in data analysis and extract insights from data through the analysis process to address business problems effectively.	30	87	Students are well equipped to grasp the key concepts in data analysis and extract insights from data through the analysis process to address business problems effectively.
4	Mathematics for Machine Learning and Data Science	By the end of the course, the student will have a deep understanding of the math that makes machine learning algorithms work.	34	86.9	The student exhibits a profound grasp of the mathematical concepts that underlie machine learning algorithms.
5	Build Basic Generative Adversarial Networks	At the end of the course, students will have a comprehensive knowledge base regarding GAN and be able to build a GAN model.	29	91.5	Students can have a comprehensive knowledge base of GAN and build a GAN model
6	Tensorflow Data and Deployment	By the end of the course, the student will be able to deploy Machine Learning models on the web.	39	90.6	The student is adept at deploying Machine Learning models on the web.
7	Machine Learning Specialization	By the end of the course, the student will be able to comprehend the fundamental concepts of Machine Learning (Build ML models with NumPy & scikit-learn, supervised models, unsupervised, and use decision trees) and also understand the application of machine learning to solve real-world problems.	94	91.3	The student masters the fundamental concepts (Build ML models with NumPy & scikit-learn, supervised models, unsupervised, and use decision trees) and also understands the application of machine learning to solve real-world problems.
8	Deeplearning.ai TensorFlow Developer Professional Certificate	By the end of the course, the student will be able to apply TensorFlow skills (NLP, Neural Network) to various problems and projects.	79	90.8	The student can apply TensorFlow skills (NLP, Neural Network) to various problems and projects.
9	Structuring Machine Learning Projects	By the end of the course, the student will be able to execute the end-to-end workflow from the Machine Learning project.	6	80.7	The student is skilled in executing the end-to-end workflow from the Machine Learning project.
10	Introduction to Generative AI	By the end of the course, the student will be able to grasp key concepts in generative AI.	4	91.5	Students can grasp key concepts in generative AI effectively.
11	Capstone / Final Project	By the end of the course, the student will be able to begin stages of a final project, namely developing an application/solution that validates their product development skills and boosts the portfolio.	212	91.3	The student is competent to begin stages of a final project, namely developing an application/solution that validates their product development skills and boosts the portfolio.
12	Soft skill & Career Development	By the end of the course, the student will be able to comprehend Life Path, Growth Mindset, The Power of Feedback, Time Management, Critical Thinking, Problem Solving, Adaptability, Resilience, Project Management, Professional Branding and Interview Communication.	230	89.8	The student thoroughly comprehends Life Path, Growth Mindset, The Power of Feedback, Time Management, Critical Thinking, Problem Solving, Adaptability, Resilience, Project Management, Professional Branding and Interview Communication.

This is Bangkit-system-generated certificate and valid without signature

bangkit

Jakarta, January 10th, 2025

To whom it may concern

This letter is to certify that the following student has successfully participated in Bangkit 2024 Batch 2, and therefore **Graduated** from Bangkit 2024, a Google-led program in collaboration with GoTo and Traveloka in **Machine Learning** learning path:

Name	: Ahmad Zakaria
Student ID (Origin University)	: 123220077
University	: Universitas Pembangunan Nasional Veteran Yogyakarta
Study Program	: Informatika
Supervisor	: Andiko Putro Suryotomo, S.Kom, M.Cs.
Bangkit ID	: M297B4KY0240
Program Period	: 6 September 2024 - 31 December 2024

Bangkit is an approved Kampus Merdeka - Study Independent program fully supported by the Ministry of Education, Culture, Research, and Technology - Republic of Indonesia. This industry-led, interdisciplinary, and immersive program is designed to produce high-caliber technical talents for world-class Indonesian technology companies and startups.

In this odd semester 4,636 students from 400 universities across Indonesia were selected from more than 45,000 registrants to join Bangkit. They learned to improve their technical skills, soft skills, and English competencies to help them get better employability in their future careers in the technology industry.

Sincerely,

bangkit

Mutiara Arumsari

Bangkit ID Program Manager