Musa Kaan ALTIN - Project Portfolio

Computer Engineer

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Courses & Certifications

Overview: Successfully completed a series of technical courses and certifications to strengthen expertise in software development, user experience, and data analytics.

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Overview: Successfully completed various technical trainings and certifications, covering software development, data science, user experience, and emerging technologies.

- **Blockchain Akademi Certificate** – Rise In, Superteam, Patika.dev (Nov 18, 2024)
- **AI Fundamentals: First Step into AI** – AI Business School (Sep 17, 2024)
- **Introduction to Machine Learning Bootcamp** – AI Business School
- **Java Programming Training** – TÜBİTAK BİLGEM
- **Spring Boot Training** – TÜBİTAK BİLGEM
- **Microservice Architectures Training** – TÜBİTAK BİLGEM
- **Mock-Up Design with Figma** – TÜBİTAK BİLGEM
- **User Experience and Usability Training** – TÜBİTAK BİLGEM
- **Microsoft Power BI** – BTK Akademi (Dec 27, 2023)
- **iOS Development with Swift** – Turkcell Geleceği Yazanlar
- **Advanced Java** – Turkcell Geleceği Yazanlar
- **Aygaz Machine Learning Bootcamp** – Global AI Hub (2024)
- **Akbank Deep Learning Bootcamp** – Global AI Hub (2024)

Hotel Reservation System

Technologies: Spring Boot, Angular, PostgreSQL, Firebase, JWT Authentication, REST API

Overview: Developed a full-stack booking platform where users can search for hotels, make reservations, process payments, and receive invoices automatically. Admins can manage rooms, users, and transactions.

Key Features:

- **JWT Authentication:** Secure user login and session handling.
- **Payment Integration:** Implemented online payments using Stripe API.
- **Automated Invoicing:** Generates PDF invoices and sends via email.
- **Admin Dashboard:** Room and reservation management system.

Challenges: Optimizing query performance in PostgreSQL and ensuring high security in the payment system.

Outcome: Successfully deployed with a seamless UI/UX and fast backend processing.

DailyApp - News Aggregator

Technologies: Flutter, Dart, NewsAPI, Provider (State Management)

Overview: A cross-platform mobile application fetching news from sources like BBC, CNN, and NYTimes, allowing users to filter and read articles in real-time.

Key Features:

- **Dynamic News Feed:** Real-time updates using NewsAPI.
- **State Management:** Implemented using Provider for smooth UI.
- **Personalized Experience:** Users can select their preferred news categories.

Challenges: Managing API rate limits and optimizing UI performance for low-end devices.

Outcome: Enhanced user engagement with a clean, user-friendly interface.

Banking Web Application

Technologies: Node.js, Express.js, PostgreSQL, JWT Authentication, REST API, Bcrypt.js

Overview: Developed a secure banking web application for managing user accounts, transactions, and customer data. The system includes authentication, authorization, and financial operations.

Key Features:

- **Secure Authentication:** JWT-based login and password hashing (Bcrypt.js).
- **Customer Management:** Users can register, update profiles, and manage accounts.
- **Transaction Handling:** Supports deposits, withdrawals, and balance updates.
- **Role-Based Access:** Admins can manage customer records and monitor financial activities.

Outcome: Successfully deployed with optimized queries, ACID-compliant transactions, and a secure user management system.

GitHub Repository: Banking Web App

Scanner - Image Recognition & Product Search

Technologies: Flutter, Google Vision API, Firebase, Web Scraping

Overview: A mobile application that identifies objects in images and searches for related second-hand products on e-commerce platforms.

Key Features:

- **Google Vision API:** Extracts product information from images.
- **Web Scraping:** Fetches real-time listings from second-hand marketplaces.
- **Real-time Search:** Users can take a picture and instantly see related products.

Challenges: Handling inaccurate object detection and implementing fast, efficient search results.

Outcome: Improved object recognition accuracy through model tuning and API adjustments.

CheapTicket - Flight Price Tracker

Technologies: Flutter, Web Scraping (BeautifulSoup, Selenium), Firebase

Overview: A flight price tracking system that scrapes airline ticket prices and updates the list every 15 minutes.

Key Features:

- **Automated Price Scraping:** Extracts flight details dynamically.
- **Database Optimization:** Stores and updates flight prices efficiently.
- **User Alerts:** Sends notifications for price drops.

Challenges: Avoiding website bans while performing frequent scraping.

Outcome: Successfully monitored price fluctuations while maintaining website compliance.

TicketFinder - Flight Comparison Platform

Technologies: Python, Flask, Web Scraping, Selenium, BeautifulSoup

Overview: A web application that compares flight prices from multiple airline websites in real-time.

Key Features:

- **Multiple Airline Comparisons:** Fetches data from multiple sources.
- **Rate Limiting:** Prevents excessive requests and blocks.

- **Simple UI:** Users can enter departure and destination to get the best deals.

Challenges: Managing IP bans and ensuring accurate data parsing.

Outcome: Successfully compared flight prices across platforms with accurate results.

Real-Time Embedded System Development

Technologies: Tiva C TM4C1294XL, Code Composer Studio

Overview: Developed firmware for a real-time embedded system focused on data acquisition and processing for critical applications.

Key Features:

- **UART Communication:** Enabled efficient serial data transfer and JSON conversion for visualization.
- **Signal Analysis:** Utilized logic analyzers to validate system performance and troubleshoot issues.
- **FIFO Implementation:** Applied FIFO algorithms to optimize real-time data storage.

Outcome: Improved system performance and enhanced real-time data processing reliability.

MapStagram - Map-Based Social Media App

Technologies: iOS, Firebase, Google Maps API, SDWebImage

Overview: Developed an iOS application that allows users to post and view disaster-related images with geolocation tagging, facilitating real-time information sharing.

Key Features:

- **Location Integration:** Embedded Google Maps API for accurate location-based posts.
- **Secure Authentication:** Implemented Firebase Authentication for reliable user login.
- **Optimized UI Performance:** Integrated SDWebImage to ensure efficient image loading and reduced memory usage.

Outcome: Enhanced user engagement and improved real-time information dissemination during emergencies.

AI & Machine Learning Projects

Technologies: Python, TensorFlow, Scikit-learn

Overview: Developed multiple machine learning models for classification, regression, and clustering tasks. Applied deep learning techniques for pattern recognition.

Key Features:

- Implemented supervised learning models with high accuracy rates.
- Developed deep learning models for financial classification.
- Applied feature engineering and hyperparameter tuning.

Outcome: Models achieved high accuracy in multiple domains, including financial prediction and sentiment analysis.

GitHub Repository: AI & Machine Learning Projects

Real-Time Air Quality Monitoring System

Technologies: STM32 Nucleo F207ZG, HAL libraries

Overview: Designed and implemented an embedded system for real-time air quality monitoring, integrating multiple environmental sensors for accurate data acquisition.

Key Features:

- **Comprehensive Sensor Integration:** Monitored temperature, humidity, VOC, NOx, and PM particle levels.
- **Real-Time Data Processing:** Optimized embedded firmware to ensure fast data acquisition and visualization.
- **Memory Optimization:** Applied advanced memory management techniques for stable and efficient operation.

Outcome: Successfully developed a reliable and real-time environmental monitoring system with optimized embedded firmware.

Blockchain-Akademi Project

Technologies: Motoko, Blockchain, Internet Computer

Overview: Developed a decentralized calculator application using **Motoko** on the Internet Computer blockchain. The project showcases **Web3 and smart contract capabilities**.

GitHub Repository: Blockchain-Akademi **Project Link:** Motoko Playground Calculator

GlobalAIHub - Aygaz Data Analysis Project

Technologies: Python, Pandas, Matplotlib, Seaborn, Jupyter Notebook

Overview: Conducted data analysis using Python-based libraries to visualize trends and extract insights from datasets.

Key Features:

- **Data Cleaning and Preprocessing:** Handled missing values, outliers, and feature engineering.
- **Exploratory Data Analysis (EDA):** Used visualization tools like Matplotlib and Seaborn.
- **Statistical Insights:** Applied correlation analysis and hypothesis testing.

Outcome: Gained meaningful insights from the dataset, improving data-driven decision-making.

GitHub Repository: GlobalAIHub VeriAnalizi

GlobalAIHub - Akbank Bootcamp Deep Learning Project

Technologies: Python, TensorFlow, Keras, Deep Learning

Overview: Developed a deep learning project using **Convolutional Neural Networks (CNN)** to classify financial data. The model demonstrated high accuracy in identifying patterns and trends within the dataset.

Results:

- **Training Accuracy:** 98.7%
- **Test Accuracy:** 99.6%
- The model performed exceptionally well, with detailed performance metrics available in the confusion matrix and classification report.

GitHub Repository: GlobalAIHub Akbank Bootcamp Project

GlobalAIHub - Aygaz Bootcamp Machine Learning Project

Technologies: Python, Scikit-learn, Machine Learning

Overview: Implemented for sentiment analysis and for unsupervised learning. The project classifies user reviews as positive or negative.

Results:

- **Logistic Regression Accuracy:** 89.68%
- **Clustering Analysis:** KMeans algorithm revealed underlying patterns in unstructured data.

GitHub Repository: GlobalAIHub Bootcamp Machine Learning Project

Harita - iOS Map Application

Technologies: Swift, UIKit, CoreData, MapKit

Overview: Developed an iOS application that allows users to pin locations on a map and save them locally.

Key Features:

- **Location Management:** Integrated MapKit to allow users to mark and store locations.
- **Persistent Storage:** Used CoreData for saving location data across sessions.
- **Optimized UI:** Ensured smooth navigation and interaction.

Outcome: Successfully created an interactive map-based application with real-time location saving.

GitHub Repository: HaritaUygulamasi