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# Project 1: AWS Bucket File Transfer Service

**Description:** This project involves creating a service that facilitates seamless file transfers between different AWS S3 buckets. The service will encapsulate the details of individual buckets and offer a generic, user-friendly interface for file operations. An integral part of the project is the development of a secure admin panel for managing AWS credentials, ensuring safe and controlled access to AWS resources.

Milestone 1: Core Service Development

- \*\*Requirements:\*\*

- Develop a service that can interface with AWS S3 APIs.

- Implement functionality to list, upload, and download files from specified buckets.

- Ensure the service can handle different file types and sizes efficiently.

- Incorporate error handling for connectivity issues and access permissions.

Milestone 2: Configurable Interface Implementation

- \*\*Requirements:\*\*

- Create a user-friendly interface allowing users to specify source and destination buckets.

- Implement input validation to ensure correct bucket names and file paths.

- Provide feedback to users on the status of file transfers (e.g., in progress, completed, failed).

- Design the interface for scalability, allowing for future addition of features.

Milestone 3: Admin Panel for Credential Management

- \*\*Requirements:\*\*

- Develop a secure admin panel for managing AWS credentials.

- Implement encryption for storing sensitive data.

- Allow for the addition, removal, and modification of AWS account details.

- Provide secure access controls to the admin panel.

# Project 2: Customer Feedback Analysis Tool

**Description:** The objective is to develop a web-based tool that aggregates customer feedback from multiple channels, including social media, emails, and websites. This tool will apply sentiment analysis to understand customer sentiments and emotions. The end product will include a comprehensive dashboard that visualizes customer feedback trends and sentiment analysis results, providing valuable insights into customer satisfaction and areas for improvement.

Milestone 1: Data Aggregation Module

- \*\*Requirements:\*\*

- Create connectors to various feedback sources (APIs for social media, email parsing capabilities, etc.).

- Store aggregated data in a structured format for analysis.

- Ensure efficient handling of large volumes of data.

- Include timestamp and source information for each piece of feedback.

Milestone 2: Sentiment Analysis Integration

- \*\*Requirements:\*\*

- Integrate a sentiment analysis library or API.

- Apply sentiment analysis to the collected feedback data.

- Categorize feedback into positive, negative, or neutral sentiments.

- Store analysis results in an accessible format for reporting.

Milestone 3: Reporting Dashboard

- \*\*Requirements:\*\*

- Develop a dashboard displaying sentiment analysis results.

- Include filters for time range, feedback source, and sentiment category.

- Implement visualizations (charts, graphs) to represent data clearly.

- Ensure the dashboard is responsive and user-friendly.

# Project 3: Inventory Management System

**Description:** This project aims to build an efficient inventory management system for small to medium-sized retail businesses. The system will manage stock levels, track orders, and provide alerts for low inventory. It will include features for adding, updating, viewing, and deleting inventory items, along with capabilities for order management and reporting, thereby streamlining the inventory process and enhancing operational efficiency.

Milestone 1: Database Setup and Basic CRUD Operations

- \*\*Requirements:\*\*

- Establish a database schema for inventory items (including fields like item name, quantity, supplier, price).

- Develop web interfaces for adding, viewing, updating, and deleting inventory items.

- Ensure data validation and error handling in CRUD operations.

- Implement user authentication to secure access to inventory data.

Milestone 2: Order Processing Module

* **Requirements:**
  + Create a system for placing and tracking inventory orders.
  + Include functionalities for order confirmation, status updates, and history tracking.
  + Integrate alerts for delays or issues in order processing.
  + Provide reporting features for order volume, frequency, and supplier performance.

Milestone 3: Inventory Alerts System

* **Requirements:**
  + Implement a notification system for low-stock items.
  + Allow setting customizable threshold levels for different items.
  + Include an automated suggestion for reorder quantities based on historical data.
  + Provide options for manual or automated reorder requests.

# Project 4: Employee Onboarding Portal

**Description:** The project's goal is to create a comprehensive online portal for new employee onboarding. This portal will serve as a central hub for essential information, document management, and task tracking for new hires. It aims to streamline the onboarding process by providing easy access to company policies, necessary forms, and a checklist of onboarding tasks, thereby enhancing the new employee experience.

Milestone 1: Information Hub Creation

* **Requirements:**
  + Develop a central repository of company policies, FAQs, and resources.
  + Ensure easy navigation and search functionality.
  + Design for mobile and desktop compatibility.
  + Implement user feedback mechanisms to improve content relevance.

Milestone 2: Document Management System

* **Requirements:**
  + Implement a system for uploading, managing, and accessing onboarding documents.
  + Ensure secure handling and storage of sensitive documents.
  + Allow for easy retrieval and organization of documents.
  + Integrate digital signature capabilities for necessary forms.

Milestone 3: Onboarding Task Tracker

* **Requirements:**
  + Create a task tracking system for new hires to monitor their onboarding progress.
  + Implement notifications and reminders for pending tasks.
  + Allow managers to track the progress of their new team members.
  + Provide analytics on the average time taken for onboarding completion.

# Project 5: Event Registration and Management App

**Description:** This project involves developing an application tailored for event management, focusing on attendee registration, management, and schedule dissemination. The app will facilitate easy registration for events, handle attendee data, and provide real-time updates on event schedules. It aims to simplify the event management process for organizers while enhancing the experience for attendees through efficient and user-friendly design.

Milestone 1: Registration System Development

* **Requirements:**
  + Develop an intuitive and secure registration interface for event attendees.
  + Implement data collection for attendee information.
  + Ensure compatibility with various payment gateways for event fees.
  + Provide confirmation emails and notifications upon registration.

Milestone 2: Attendee Management and Reporting

* **Requirements:**
  + Create functionalities for managing attendee lists, including additions and cancellations.
  + Develop reporting tools for event organizers to view attendee demographics and registration statistics.
  + Implement a check-in system for event day management.
  + Ensure data privacy and security in handling attendee information.

Milestone 3: Event Schedule Module

* **Requirements:**
  + Develop a module for attendees to access the event schedule, session details, and speaker information.
  + Allow for real-time updates to the schedule if there are any changes.
  + Include interactive features like adding sessions to personal calendars.
  + Ensure the module is accessible on multiple devices and platforms.

# Project 7: Health and Wellness App

**Description:**  
Create a comprehensive health and wellness app that offers features like activity tracking, diet planning, and mental health resources. The app aims to encourage users to maintain a healthy lifestyle by providing personalized recommendations and tracking their progress.

Milestone 1: Activity Tracking

* **Requirements:**
  + Implement features to track physical activities, such as steps, running, cycling, with the ability to sync with wearable devices.
  + Allow users to set and track fitness goals.
  + Visualize activity data through graphs and summaries.

Milestone 2: Diet Planner

* **Requirements:**
  + Develop a feature for users to log their daily food and water intake.
  + Include a database of foods with nutritional information.
  + Provide personalized diet recommendations based on user goals and dietary restrictions.

Milestone 3: Mental Health Resources

* **Requirements:**
  + Integrate resources for mental wellness, including stress-relief exercises, meditation guides, and articles.
  + Implement a mood tracker for users to record and reflect on their mental state.
  + Provide links to professional support and emergency resources.

# Project 8: Real Estate Property Listing Platform

**Description:**  
Develop an online platform for real estate listings, enabling users to browse, list, and inquire about properties. The platform aims to simplify the property search process and connect buyers with sellers effectively.

Milestone 1: Property Listing Database

* **Requirements:**
  + Create a database for property listings with details like location, price, size, and photos.
  + Develop an interface for sellers or agents to upload and manage their listings.
  + Implement advanced search and filter options for users.

Milestone 2: User Account Management

* **Requirements:**
  + Develop a user registration and authentication system.
  + Allow users to save favorite listings and set up property alerts.
  + Implement user profiles for both buyers and sellers.

Milestone 3: Inquiry and Communication System

* **Requirements:**
  + Create a secure messaging system for users to inquire about properties.
  + Implement notification alerts for new messages or listing updates.
  + Ensure privacy and data security in user communications.

# Project 9: Online Course Platform

**Description:**  
Build an online platform that offers a range of educational courses and resources. The platform will cater to various learners, providing interactive learning materials, quizzes, and certification upon course completion.

Milestone 1: Course Content Management

* **Requirements:**
  + Develop a system for educators to upload and organize course materials, including videos, documents, and quizzes.
  + Implement a user-friendly interface for course navigation.
  + Ensure compatibility with different media formats and devices.

Milestone 2: Learner Progress Tracking

* **Requirements:**
  + Create features for learners to track their progress within courses.
  + Implement quiz and assignment submission functionalities.
  + Provide feedback mechanisms and certification for course completion.

Milestone 3: Community and Discussion Forums

* **Requirements:**
  + Build forums and community spaces for learners to discuss course materials and collaborate.
  + Implement moderation tools for educators and administrators.
  + Ensure a respectful and inclusive environment for users.

# Project 10: Smart Parking Solution

**Description:**  
Develop a smart parking solution that helps users find and book parking spaces in urban areas. The system will include real-time tracking of available spaces and offer various payment options.

Milestone 1: Real-Time Parking Space Monitoring

* **Requirements:**
  + Implement IoT integration for real-time monitoring of parking space availability.
  + Develop a user interface displaying available spaces in a specified area.
  + Ensure accurate and timely updates of parking space status.

Milestone 2: Booking and Payment System

* **Requirements:**
  + Create a booking system allowing users to reserve parking spaces.
  + Integrate multiple payment options, including digital wallets and card payments.
  + Implement secure transaction processing and data encryption.

Milestone 3: Navigation and Guidance

* **Requirements:**
  + Develop a navigation feature to guide users to their booked parking spot.
  + Implement integration with maps and GPS services.
  + Provide user support and assistance features in case of issues with finding or accessing spots.

# Project 11: Sales Data Analysis Dashboard

**Description:**  
Develop a dashboard to analyze sales data from a retail company. This project involves data cleaning, analysis, and visualization to provide insights into sales trends, customer behavior, and product performance.

Milestone 1: Data Cleaning and Preparation

* Import and clean data from various sources.
* Handle missing values and outliers.
* Standardize data formats for analysis.

Milestone 2: Exploratory Data Analysis (EDA)

* Perform statistical analysis to understand distributions and trends.
* Identify patterns and correlations between different variables.

Milestone 3: Dashboard Development

* Create an interactive dashboard using tools like Tableau or Power BI.
* Implement filters and controls for different data views.
* Visualize key metrics such as total sales, top products, and customer demographics.

# Project 12: Customer Sentiment Analysis

**Description:**  
Perform sentiment analysis on customer reviews from social media or e-commerce platforms. This project aims to understand customer sentiments towards products or services using natural language processing techniques.

Milestone 1: Data Collection and Preprocessing

* Collect customer reviews from social media or other platforms.
* Preprocess the text data (tokenization, removing stopwords, etc.).

Milestone 2: Sentiment Analysis Model

* Apply NLP techniques to analyze sentiments (positive, negative, neutral).
* Use machine learning models to classify reviews.

Milestone 3: Reporting and Insights

* Summarize findings in a report.
* Provide insights into customer satisfaction and areas for improvement.

# Project 13: Website Traffic Analysis

**Description:**  
Analyze website traffic data to understand user behavior and improve website performance. Focus on metrics like page views, bounce rate, user demographics, and conversion rates.

Milestone 1: Data Collection and Aggregation

* Collect data from web analytics tools (e.g., Google Analytics).
* Aggregate data for analysis.

Milestone 2: User Behavior Analysis

* Analyze user flow and behavior on the website.
* Identify high-performing and underperforming pages.

Milestone 3: Insights and Recommendations

* Provide insights into user engagement and website effectiveness.
* Suggest improvements based on data findings.

# Project 14: Inventory Optimization Model

**Description:**  
Develop a model to optimize inventory levels based on historical sales data, trends, and seasonal variations. Aim to reduce overstock and stockouts, improving inventory efficiency.

Milestone 1: Data Analysis of Sales History

* Analyze historical sales data to understand demand patterns.
* Identify seasonal trends and demand variability.

Milestone 2: Inventory Model Development

* Develop a model to forecast demand and recommend optimal inventory levels.
* Use techniques like time series analysis or machine learning.

Milestone 3: Model Validation and Reporting

* Validate the model against actual data.
* Create a report on potential inventory cost savings and efficiency improvements.

# Project 15: Predictive Maintenance for Machinery

**Description:**  
Implement a predictive maintenance system for industrial machinery using sensor data. Aim to predict equipment failures before they happen, reducing downtime.

Milestone 1: Data Collection and Preprocessing

* Collect sensor data from machinery (e.g., temperature, vibration).
* Preprocess data for analysis.

Milestone 2: Predictive Model Development

* Develop a machine learning model to predict potential failures.
* Test different algorithms for best performance.

Milestone 3: Implementation and Reporting

* Implement the model in a simulated environment.
* Report on the effectiveness of the model in predicting failures.

# Project 16: Market Basket Analysis

**Description:**  
Conduct a market basket analysis for a retail grocery store to understand customer purchasing patterns. Use association rule mining to find frequent item sets and rules.

Milestone 1: Data Preparation and Exploration

* Prepare transaction data for analysis.
* Explore data to understand common items and transactions.

Milestone 2: Association Rule Mining

* Apply algorithms like Apriori or FP-Growth to find frequent item sets.
* Generate and evaluate association rules.

Milestone 3: Insights and Business Strategies

* Extract insights from the rules (e.g., product placement, cross-selling opportunities).
* Suggest business strategies based on findings.

# Project 17: Health Care Data Visualization

**Description:**  
Create visualizations for a healthcare dataset, such as patient data, treatment outcomes, or hospital resource utilization. Aim to identify trends and areas for improvement in healthcare delivery.

Milestone 1: Data Cleaning and Standardization

* Clean and standardize healthcare data for analysis.
* Ensure compliance with data privacy regulations.

Milestone 2: Data Analysis and Visualization

* Analyze data to identify key metrics and trends.
* Create visualizations using tools like Tableau or Python libraries.

Milestone 3: Report and Recommendations

* Compile findings into a comprehensive report.
* Provide recommendations to healthcare providers based on data insights.

# Project 18: Social Media Trend Analysis

**Description:**  
Analyze social media data to identify current trends and topics of interest. Use data from platforms like Twitter, Instagram, or Facebook.

Milestone 1: Data Collection and Processing

* Gather social media data using APIs.
* Process data for text analysis (cleaning, tokenization).

Milestone 2: Trend Analysis

* Apply text analysis to identify popular topics and trends.
* Use sentiment analysis to gauge public opinion on these topics.

Milestone 3: Visualization and Reporting

* Visualize trends and sentiment over time.
* Create a report summarizing key findings and insights.

# Project 19: Energy Consumption Forecasting

**Description:**  
Develop a model to forecast energy consumption for a utility company, using historical consumption data, weather data, and other relevant factors.

Milestone 1: Data Collection and Exploration

* Collect and explore historical energy consumption data.
* Integrate external data sources like weather information.

Milestone 2: Forecasting Model Development

* Develop and train a forecasting model (e.g., regression, time series).
* Optimize the model for accuracy.

Milestone 3: Model Evaluation and Reporting

* Evaluate model performance using metrics like MAE, RMSE.
* Report on model accuracy and potential implications for energy planning.

# Project 20: Financial Credit Risk Analysis

**Description:**  
Analyze credit risk for a financial institution using customer loan data. Focus on identifying factors that contribute to loan defaults and building a predictive model.

Milestone 1: Data Preprocessing and Exploration

* Clean and preprocess loan dataset.
* Explore data to understand patterns and correlations.

Milestone 2: Predictive Modeling

* Develop a model to predict the likelihood of loan default.
* Test various algorithms for best performance (e.g., logistic regression, decision trees).

Milestone 3: Model Evaluation and Insights

* Evaluate the model using metrics like accuracy, ROC-AUC.
* Provide insights on key factors influencing credit risk.

# Project 21: Multi-Cloud Storage Integration

**Description:**  
Create an application that integrates storage solutions from multiple cloud providers (e.g., AWS S3, Azure Blob Storage, Google Cloud Storage). This project focuses on understanding different cloud storage APIs and building a unified interface.

Milestone 1: API Integration

* Set up accounts and services on AWS, Azure, and Google Cloud.
* Develop a module to interact with each cloud provider's storage API.

Milestone 2: Unified Storage Interface

* Create a single interface for uploading, downloading, and managing files across different clouds.
* Implement features like file synchronization and data redundancy.

Milestone 3: User Interface and Access Control

* Develop a user-friendly web interface for file management.
* Implement access control and security measures.

# Project 22: Serverless Data Processing Pipeline

**Description:**  
Build a serverless data processing pipeline using AWS Lambda, Azure Functions, or Google Cloud Functions. This pipeline will handle tasks like data collection, transformation, and storage.

Milestone 1: Pipeline Design

* Design the data flow and processing stages (e.g., data ingestion, transformation).
* Choose appropriate serverless services for each stage.

Milestone 2: Implementation

* Implement the pipeline stages using serverless functions.
* Integrate with cloud-based databases or storage for data persistence.

Milestone 3: Monitoring and Optimization

* Set up monitoring for the pipeline (e.g., using AWS CloudWatch, Azure Monitor).
* Optimize performance and cost-effectiveness.

# Project 23: Cloud-Based Containerized Application

**Description:**  
Deploy a containerized application using Kubernetes or a similar orchestration tool on a cloud platform. Focus on containerization, deployment, scaling, and management.

Milestone 1: Application Containerization

* Containerize an existing application using Docker.
* Create a Dockerfile and build a Docker image.

Milestone 2: Kubernetes Cluster Setup and Deployment

* Set up a Kubernetes cluster on the cloud (e.g., using Amazon EKS, Azure AKS, Google GKE).
* Deploy the application on the cluster and configure load balancing.

Milestone 3: Autoscaling and Monitoring

* Implement autoscaling for the application based on traffic.
* Set up monitoring and logging (using tools like Prometheus, Grafana).

# Project 24: Cloud-Based IoT Platform

**Description:**  
Develop an IoT platform on the cloud that can collect, process, and visualize data from IoT devices. Focus on cloud IoT services, real-time data processing, and visualization.

Milestone 1: IoT Device Simulation and Data Collection

* Simulate IoT devices (e.g., temperature sensors, smart meters) or use actual devices.
* Set up cloud IoT services (like AWS IoT Core, Azure IoT Hub) to collect data.

Milestone 2: Real-Time Data Processing

* Implement real-time data processing using cloud services (e.g., AWS Lambda, Azure Stream Analytics).
* Store processed data in a cloud database.

Milestone 3: Data Visualization and Control Interface

* Develop a dashboard to visualize IoT data.
* Create control mechanisms to interact with IoT devices.

# Project 25: Cloud Security and Compliance Audit

**Description:**  
Perform a security and compliance audit for a cloud environment. This project involves assessing the security posture, identifying vulnerabilities, and suggesting improvements.

Milestone 1: Security Assessment

* Review the current cloud architecture and security configurations.
* Identify potential security weaknesses and vulnerabilities.

Milestone 2: Compliance Check

* Compare the cloud setup with industry standards and compliance requirements (e.g., GDPR, HIPAA).
* Document compliance gaps and areas of non-conformity.

Milestone 3: Improvement Plan and Implementation

* Develop a plan to address identified security and compliance issues.
* Implement security enhancements such as improved access controls, encryption, and monitoring.

# Project 26: Customer Segmentation using Clustering

**Description:**  
Develop a machine learning model to segment customers based on purchasing behavior. This project will use clustering techniques to identify distinct groups within a customer database.

Milestone 1: Data Preparation and Exploration

* Collect and clean customer data (purchase history, demographics, etc.).
* Perform exploratory data analysis to understand patterns and relationships.

Milestone 2: Clustering Model Development

* Apply clustering algorithms (like K-means, hierarchical clustering) to segment customers.
* Determine the optimal number of clusters.

Milestone 3: Analysis and Insights

* Analyze the characteristics of each customer segment.
* Provide actionable insights for targeted marketing strategies.

# Project 27: Predictive Maintenance using Time Series Analysis

**Description:**  
Create a model to predict equipment failures in a manufacturing setting using time series analysis. This project aims to reduce downtime and maintenance costs.

Milestone 1: Data Collection and Preprocessing

* Gather historical equipment data (sensor readings, maintenance records).
* Preprocess data for time series analysis (handling missing values, normalization).

Milestone 2: Time Series Forecasting Model

* Develop a forecasting model using algorithms like ARIMA, LSTM.
* Train the model to predict equipment failures.

Milestone 3: Model Evaluation and Deployment

* Evaluate the model's performance (accuracy, precision, recall).
* Prepare the model for deployment in a production environment.

# Project 28: Sentiment Analysis of Social Media Posts

**Description:**  
Build a sentiment analysis model to classify social media posts as positive, negative, or neutral. This project can provide valuable insights into public opinion and trends.

Milestone 1: Data Collection and Preprocessing

* Scrape social media posts or use an existing dataset.
* Clean and preprocess text data (tokenization, lemmatization, vectorization).

Milestone 2: Sentiment Analysis Model

* Train a sentiment analysis model using NLP techniques (e.g., Naive Bayes, LSTM).
* Use word embeddings for better feature representation.

Milestone 3: Model Testing and Interface Development

* Test the model on unseen data and evaluate performance metrics.
* Develop a simple user interface to display sentiment analysis results.

# Project 29: Image Recognition with Deep Learning

**Description:**  
Implement an image recognition system using convolutional neural networks (CNNs). The project involves classifying images into predefined categories.

Milestone 1: Dataset Preparation and Augmentation

* Gather and organize an image dataset (e.g., from ImageNet, CIFAR-10).
* Perform image augmentation techniques to expand the dataset.

Milestone 2: CNN Model Development

* Design and train a CNN for image classification.
* Experiment with different architectures and hyperparameters.

Milestone 3: Model Evaluation and Fine-tuning

* Evaluate the model's performance on a test set.
* Fine-tune the model for better accuracy and efficiency.

# Project 30: Fraud Detection in Financial Transactions

**Description:**  
Develop an ML model to detect fraudulent financial transactions. This project focuses on handling imbalanced datasets and real-time prediction.

Milestone 1: Data Collection and Feature Engineering

* Obtain a dataset of financial transactions with labels (fraudulent or not).
* Perform feature engineering to extract meaningful indicators of fraud.

Milestone 2: Anomaly Detection Model

* Train an anomaly detection model (e.g., Isolation Forest, Autoencoders).
* Handle class imbalance using techniques like SMOTE or weighted classes.

Milestone 3: Model Evaluation and Deployment

* Evaluate the model's effectiveness in identifying fraud.
* Integrate the model into a simulation of a transaction processing system for real-time detection.

# Project 31: Responsive Company Website

**Description:**  
Design and develop a responsive website for a fictional company. The website should be modern, visually appealing, and work across various devices and screen sizes.

Milestone 1: Design Mockups

* Create wireframes and mockups for the main pages (home, about, services, contact).
* Focus on layout, color scheme, and typography.

Milestone 2: HTML/CSS Development

* Translate the mockups into HTML and CSS.
* Ensure the website is responsive and mobile-friendly.

Milestone 3: Interactivity and Final Touches

* Add interactive elements using JavaScript or frameworks like React or Vue.js.
* Perform cross-browser testing and optimizations.

# Project 32: eCommerce Product Listing Page

**Description:**  
Develop a dynamic product listing page for an eCommerce website. The page should include features like sorting, filtering, and a shopping cart.

Milestone 1: UI Design

* Design a clean and intuitive UI for listing products.
* Plan the layout for product filters and sorting options.

Milestone 2: Front-End Development

* Implement the design using HTML, CSS, and JavaScript.
* Create functionalities for sorting and filtering products dynamically.

Milestone 3: Shopping Cart Integration

* Add a feature to add/remove products from a shopping cart.
* Implement a mini-cart that updates in real-time.

# Project 33: Dashboard for Data Visualization

**Description:**  
Create a dashboard UI for visualizing complex datasets. The dashboard should be user-friendly and present data through various charts and graphs.

Milestone 1: Dashboard Design

* Design a layout that efficiently displays different types of data.
* Focus on usability and ease of navigation.

Milestone 2: Implementation with Data Visualization Libraries

* Use libraries like D3.js, Chart.js, or Google Charts to create interactive charts and graphs.
* Implement data binding to dynamically update visualizations.

Milestone 3: Interactivity and Responsiveness

* Add interactive elements to the dashboard (e.g., filters, dropdowns).
* Ensure the dashboard is responsive and accessible on different devices.

# Project 34: Mobile App UI for Task Management

**Description:**  
Design and develop the UI for a task management mobile application. The app should offer a great user experience and include features like task categorization, notifications, and a calendar view.

Milestone 1: App Design and Wireframing

* Create wireframes for the key screens (task list, task creation, calendar).
* Focus on a user-friendly and intuitive design.

Milestone 2: Front-End Development

* Develop the UI using a mobile app framework like React Native, Flutter, or Swift for iOS.
* Implement navigation, task management functionalities, and calendar integration.

Milestone 3: Usability Testing and Iteration

* Conduct usability tests to gather feedback.
* Refine the UI based on user feedback and usability best practices.

# Project 35: Interactive Landing Page for a Product

**Description:**  
Create an interactive and engaging landing page for a fictional product. The page should include animations, scroll effects, and call-to-action (CTA) buttons.

Milestone 1: Creative Concept and Design

* Develop a creative concept that aligns with the product's branding.
* Design a visually appealing layout with a focus on conversion.

Milestone 2: Animation and Scroll Effects

* Implement animations and scroll effects using CSS and JavaScript libraries (like AOS.js, ScrollMagic).
* Ensure that the animations are smooth and enhance user experience.

Milestone 3: Conversion Optimization

* Add CTA buttons and ensure they are prominently placed.
* Optimize the page for load speed and SEO.

# Project 36: Weather Data Integration for Event Planning App

**Description:**  
Develop an application that integrates real-time weather data to assist in event planning. The app should provide weather forecasts and suggest optimal dates and times for events.

Milestone 1: API Integration

* Integrate a public weather API (like OpenWeatherMap or Weatherstack).
* Retrieve and display real-time weather data for a given location.

Milestone 2: Event Planning Feature

* Create functionality to plan events, considering weather forecasts.
* Implement features to suggest best dates based on weather conditions.

Milestone 3: User Interface and Notifications

* Develop a user-friendly interface for planning and viewing events.
* Add notification features for weather updates or changes in plans.

# Project 37: Public Transport Scheduler with Real-Time Updates

**Description:**  
Build a scheduler application that integrates with public transport APIs to provide real-time updates on bus, train, or subway schedules.

Milestone 1: API Integration

* Connect with public transport APIs to fetch real-time schedules and delays.
* Allow users to search for transport options based on their current location or destination.

Milestone 2: Scheduling and Alerts

* Enable users to schedule trips and receive alerts for upcoming departures.
* Implement a feature to suggest alternative routes in case of delays.

Milestone 3: User Feedback and Accessibility

* Incorporate user feedback on transport conditions.
* Ensure the app is accessible and user-friendly for all types of users.

# Project 38: Health Service Locator

**Description:**  
Create an application that helps users locate nearby health services, such as hospitals, clinics, and pharmacies, using public health API data.

Milestone 1: Health Service API Integration

* Integrate with APIs providing information about health services.
* Allow users to search for health services based on location and type.

Milestone 2: Mapping and Distance Calculation

* Implement mapping functionality to display service locations.
* Calculate and display distances and estimated travel times.

Milestone 3: Ratings and Recommendations

* Include user ratings and reviews for health services.
* Provide recommendations based on user preferences and past reviews.

# Project 39: Financial Market Data Visualization Tool

**Description:**  
Develop a tool that integrates with financial market data APIs to visualize trends and provide insights into stocks, commodities, or cryptocurrencies.

Milestone 1: Financial Data API Integration

* Connect with APIs like Alpha Vantage or Yahoo Finance to fetch market data.
* Display real-time data on various financial instruments.

Milestone 2: Data Visualization

* Implement charts and graphs to represent market trends and historical data.
* Allow users to customize views and compare different financial instruments.

Milestone 3: Predictive Analysis Features

* Add basic predictive analysis tools using historical data.
* Provide alerts and notifications based on market movements or user-set criteria.

# Project 40: Social Media Aggregator

**Description:**  
Build a social media aggregator that consolidates posts from various social media platforms into a single interface.

Milestone 1: Social Media API Integration

* Integrate APIs from social media platforms like Twitter, Facebook, and Instagram.
* Fetch and display posts, photos, and videos from these platforms.

Milestone 2: Custom Feed and Filters

* Allow users to create custom feeds based on topics, hashtags, or accounts.
* Implement filtering options to curate content.

Milestone 3: Interactive Dashboard and Sharing

* Develop an interactive dashboard for easy navigation between different social media feeds.
* Enable users to share and save content directly from the aggregator.

# Project 41: Social Media Data Warehouse

**Description:**  
Build an ETL pipeline to extract data from various social media APIs, transform it into a structured format, and load it into a data warehouse for analysis.

Milestone 1: API Data Extraction

* Connect to social media APIs (e.g., Twitter, Facebook) and extract relevant data.
* Handle pagination and rate limits during extraction.

Milestone 2: Data Transformation

* Clean and transform the raw data into a structured format.
* Perform data enrichment and normalization.

Milestone 3: Data Warehouse Loading

* Design and implement a schema for the data warehouse.
* Load transformed data into the data warehouse (e.g., using tools like Amazon Redshift, Google BigQuery).

# Project 42: E-commerce Sales Analysis

**Description:**  
Create an ETL pipeline to collect sales data from e-commerce platforms, transform it, and load it into a database for business intelligence analysis.

Milestone 1: Sales Data Extraction

* Extract sales data from e-commerce platforms via their APIs.
* Handle data extraction for different types of transactions.

Milestone 2: Data Transformation

* Clean and transform sales data into a consistent format.
* Calculate key metrics like revenue, profit margins, and customer acquisition cost.

Milestone 3: Database Loading and Reporting

* Choose a database (e.g., MySQL, PostgreSQL) and design a schema.
* Load transformed data into the database and create reports for business analysis.

# Project 43: Healthcare Data Integration

**Description:**  
Develop an ETL pipeline to integrate healthcare data from disparate sources, transform it into a standardized format, and load it into a centralized database.

Milestone 1: Data Source Integration

* Connect to healthcare data sources (e.g., Electronic Health Records, lab results).
* Extract relevant data while adhering to data privacy regulations.

Milestone 2: Data Transformation

* Standardize and clean healthcare data, handling variations in formats.
* Implement data anonymization and encryption where necessary.

Milestone 3: Database Loading and Analytics

* Design a database schema suitable for healthcare data.
* Load transformed data into the database and enable analytics for healthcare professionals.

# Project 44: IoT Sensor Data Processing

**Description:**  
Build an ETL pipeline to process data from Internet of Things (IoT) sensors, transforming raw sensor data into meaningful insights.

Milestone 1: Sensor Data Extraction

* Connect to IoT sensor platforms and extract raw sensor data.
* Ensure secure and efficient data retrieval.

Milestone 2: Data Transformation

* Clean and transform sensor data into a format suitable for analysis.
* Implement algorithms for anomaly detection or pattern recognition.

Milestone 3: Data Storage and Visualization

* Choose a storage solution (e.g., MongoDB, InfluxDB) for sensor data.
* Load transformed data and create visualizations to aid in understanding sensor trends.

# Project 45: Customer Churn Prediction

**Description:**  
Create an ETL pipeline to integrate customer data from different sources, transform it, and use it to predict customer churn.

Milestone 1: Customer Data Integration

* Extract customer data from various sources (e.g., CRM, billing systems).
* Merge and clean data to create a comprehensive customer profile.

Milestone 2: Feature Engineering and Transformation

* Engineer features that might be indicative of customer churn.
* Transform data to be suitable for machine learning models.

Milestone 3: Model Training and Deployment

* Train a machine learning model to predict customer churn.
* Deploy the model and integrate it into the ETL pipeline for real-time predictions.

# Project 46: Automated Job Search Agent

**Description:**  
Develop a Selenium-based tool that automates the job search process on job boards like Indeed or LinkedIn.

Milestone 1: Website Navigation

* Use Selenium to open a job board website and automate the process of entering search criteria (like job title, location).
* Navigate through the search results pages.

Milestone 2: Data Extraction

* Extract relevant job listing details such as the title, company, location, and description.
* Handle pagination to process multiple pages of results.

Milestone 3: Notification System

* Save extracted job listings in a structured format (e.g., CSV, database).
* Implement an email or desktop notification system to alert the user about new job listings matching their criteria.

# Project 47: E-commerce Price Tracker

**Description:**  
Create a tool using Selenium to track prices of products on e-commerce websites like Amazon or eBay.

Milestone 1: Product Page Automation

* Automate the process of searching for specific products.
* Access product pages and extract key information (price, availability, ratings).

Milestone 2: Price Tracking and History

* Store price data over time to track changes.
* Create a system to compare current prices with historical data.

Milestone 3: Alert System

* Implement a feature to set price thresholds for products.
* Send alerts (via email or SMS) when a product's price drops below the set threshold.

# Project 48: Social Media Profile Aggregator

**Description:**  
Use Selenium to develop a tool that aggregates public information from social media profiles on platforms like Twitter or Instagram.

Milestone 1: Profile Access

* Navigate to specific social media profiles.
* Extract basic public information like name, bio, and profile picture.

Milestone 2: Post Extraction

* Scrape recent posts, comments, or tweets from the profiles.
* Handle dynamically loaded content using Selenium's explicit wait features.

Milestone 3: Data Aggregation

* Compile extracted data into a structured format (e.g., JSON, database).
* Implement a basic search function to query the aggregated data.

# Project 49: Automated Form Submission Bot

**Description:**  
Build a Selenium-based bot that can automatically fill out and submit forms on websites, such as contact forms or feedback surveys.

Milestone 1: Form Interaction

* Use Selenium to navigate to a website with a form.
* Automate the process of filling out form fields with predefined or dynamic data.

Milestone 2: CAPTCHA Handling

* Implement strategies to deal with simple CAPTCHAs (Note: bypassing CAPTCHA may violate website policies).
* Log successful and failed submission attempts.

Milestone 3: Submission Confirmation

* Automatically submit the form and verify submission success.
* Store confirmation details or screenshots for record-keeping.

# Project 50: News Content Scraper and Summarizer

**Description:**  
Develop a tool that uses Selenium to scrape news articles from websites like BBC or CNN, and then summarizes the content.

Milestone 1: News Article Extraction

* Navigate to news websites and access specific articles.
* Scrape the article content including title, author, and body text.

Milestone 2: Content Summarization

* Integrate a text summarization API or algorithm to summarize the articles.
* Store the original and summarized content in a structured format.

Milestone 3: User Interface for Browsing Summaries

* Create a basic web interface where users can select a news source and view summarized content.
* Allow users to compare the original and summarized text.