Task 01

Automating Credit Approval Process

You work for a large bank and need to automate the credit approval process. Develop an algorithm that minimizes the bank's risk exposure while ensuring fairness and efficiency in assessing creditworthiness.

Additional Data Search Engines:

- UCI Machine Learning Repository (https://archive.ics.uci.edu/ml/index.php)
- Data.gov (https://www.data.gov/)
- Google Dataset Search (https://datasetsearch.research.google.com/)

Task 02

Automated User Access Management for IT Systems

Access to company IT systems relies on various factors such as employee roles, work location, and projects. Design an automated system that accurately manages user access rights, reducing errors and delays associated with manual permissions management.

Additional Data Search Engines:

- Data.world (https://data.world/)
- Datahub.io (https://datahub.io/)
- Awesome Public Datasets (https://github.com/awesomedata/awesome-public-datasets)

Task 03

Identifying Plants for Halting Desertification

Seeking a solution to combat desertification, we are in search of a plant species with properties focused on soil conservation, water retention, and resistance to diseases. Identify and propose a plant species suitable for halting desertification, emphasizing its ability to preserve soil, conserve water, and withstand environmental stresses.

Additional Data Search Engines:

- FAO Statistical Databases (http://www.fao.org/faostat/en/#data)
- Global Biodiversity Information Facility (GBIF) (https://www.gbif.org/)
- Earthdata Search (https://search.earthdata.nasa.gov/)

Task 04

Predicting Crime Rates for Improved Law Enforcement

As the head of a crime prevention unit, you aim to improve response times by predicting crime rates. Develop an automatic system capable of forecasting crime rates in specific areas based on time and date, enabling law enforcement to allocate resources more effectively.

Additional Data Search Engines:

- Bureau of Justice Statistics (https://www.bjs.gov/)
- World Bank Data Catalog (https://datacatalog.worldbank.org/)
- European Social Survey (https://www.europeansocialsurvey.org/data/)

Task 05

Optimizing Movie Release Strategies for Maximum ROI

You represent a major movie production company seeking to optimize film release strategies. Create an algorithm that predicts the most profitable movie genres and optimal release timing to maximize return on investment, considering market trends and competition.

Additional Data Search Engines:

- IMDb Datasets (https://www.imdb.com/interfaces/)
- The Movie Database (TMDb) (https://www.themoviedb.org/documentation/api)
- Google Dataset Search (https://datasetsearch.research.google.com/)

Task 06

Enhancing E-commerce Product Recommendations

Managing a large e-commerce platform, you want to enhance customer satisfaction through personalized product recommendations. Design an algorithm that analyzes customer behavior to suggest relevant products, improving sales and user experience.

Additional Data Search Engines:

- Amazon Web Services (AWS) Public Datasets (https://registry.opendata.aws/)
- Walmart Dataset on Kaggle (https://www.kaggle.com/c/m5-forecasting-accuracy)
- Google Dataset Search (https://datasetsearch.research.google.com/)

Task 07

Predicting and Preventing Health Risks for Patients

As a healthcare provider, your goal is to predict and prevent potential health risks for patients. Develop an automated system that analyzes patient data to identify individuals at high risk for specific medical conditions, enabling proactive intervention and prevention measures.

Additional Data Search Engines:

- CDC WONDER (https://wonder.cdc.gov/)
- HealthData.gov (https://www.healthdata.gov/)
- European Health Information Gateway (https://gateway.euro.who.int/en/hfa-explorer/)

Task 08

Implementing Smart Traffic Management System

Your city is grappling with traffic congestion issues, and you aim to implement a smart traffic management system. Create an algorithm that processes real-time traffic data to optimize traffic flow, reduce congestion, and minimize travel time for commuters.

Additional Data Search Engines:

- OpenTraffic (https://www.opentraffic.io/)
- Google Dataset Search (https://datasetsearch.research.google.com/)

Task 09

Optimizing Solar Panel Installations for Renewable Energy

Leading a team in a renewable energy company, you seek to optimize solar panel installations. Develop a tool that evaluates geographical and weather data to identify optimal locations for solar farms, maximizing energy production efficiency.

Additional Data Search Engines:

- National Renewable Energy Laboratory (NREL) Data Catalog (https://data.nrel.gov/)
- The Power Project (https://power.larc.nasa.gov)

Task 10

Minimizing Food Waste and Optimizing Inventory Management

As a retail chain, you strive to minimize food waste and optimize inventory management. Design an algorithm that analyzes sales and inventory data to predict optimal ordering and stocking levels for perishable goods, reducing waste and improving profitability.

Additional Data Search Engines:

- Food and Agriculture Organization (FAO) Statistical Databases (http://www.fao.org/faostat/en/#data)
- Google Dataset Search (https://datasetsearch.research.google.com/)