# Graduation Project Proposal Form

## 1. Project Information

- **Project Title:** Revolutionizing Pharmaceutical Insights with Data Analytics

- **Course/Track:** Data Analysis
- **Team Members:**

1. Jihad sobhy mansour mohamed
2. Mohammed alsayed mohammed alsayed
3. Abdalrahman Amin Mosbah
4.

## 2. Project Overview

- **Objective:** Empowering a pharmaceutical company to make strategic, data-driven decisions by leveraging modern data analytics techniques with a strong focus on Python for improving operations and enhancing customer satisfaction.
- **Scope of Work:**
  1. Analyzing sales data using Python and SQL to identify top-demanded products and target regions.
  2. Linking pharmaceutical data to market trends to generate actionable insights.
  3. Designing a predictive model using Python's machine learning libraries to forecast future demand.
  4. Creating dynamic dashboards with Power BI for quick and effective decision-making.
- **Expected Outcomes:**

1. Comprehensive understanding of market trends and customer needs, supported by Python-driven analytics.
2. Enhanced operational efficiency and product distribution strategies.
3. Strategic marketing recommendations generated from Python-based data models.

4. Strengthened competitive edge in local and international markets.

## 3. Problem Statement

Pharmaceutical companies face challenges in utilizing their data strategically due to a lack of integration between data sources and analysis tools. With the team’s unified expertise in Python, this project aims to transform raw data into actionable insights, addressing inefficiencies and missed opportunities.

## 4. Proposed Solution

- **Technologies Used:**

1. Python: Data cleaning with pandas.

Data analysis with NumPy and statistical tools.

Machine learning models using Scikit-learn and TensorFlow.

2. SQL: Efficient data extraction and preprocessing.
3. Power BI: Interactive and user-friendly visualization of data-driven insights.

**System Architecture:**

1. Data Collection: Sales and market data collected from company databases.
2. Data Cleaning: Using Python for preprocessing and ensuring data quality.
3. Analysis: Identifying patterns and trends using Python and SQL.
4. Visualization: Developing comprehensive dashboards with Power BI.
5. Prediction: Building machine learning models to forecast future trends.

4.Visualization: Build interactive visualizations using Power BI.

5. Prediction: Apply predictive models to generate actionable forecasts.

**5. Resources Needed**

- **Hardware/Software:**

1. Data analytics tools (python and Power BI)
2. High-performance devices to process large datasets.
3. Monthly sales data from pharmaceutical companies.

**6. Approval**

- **Instructor/Advisor:** .....
- **Signature:** .....