Proposal Document for the project

—Write the Title of the Project here——

### List your names and IDs here

### Supervisor

November 2024

**GitHub:** ........................................................

**Abstract**

The main idea of this project is to study the (Word Limit 150)

# Introduction

## Background

Managing personal finances is one of the most fundamental skills that impact individuals and economies alike. In today’s digital age, the ability to monitor expenses effectively has become increasingly critical as people navigate complex spending patterns.

Globally, many individuals struggle with maintaining their budgets, leading to financial instability and stress. The problem extends beyond individuals to small businesses, where poor financial tracking often results in inefficiencies and losses.

With the fast pace the technology in our world and the expansion of mobile and web technologies, innovative solutions have emerged, yet many existing applications remain either overly simplistic or too complex for daily use. Bridging this gap, the development of user-friendly and intelligent expense management systems can empower users to take control of their finances. This project focuses on creating a **Smart Expense Tracker App** that combines simplicity, functionality, and intelligence to address these challenges.

## Motivation

#### Academic

The Smart Expense Tracker App addresses several academic needs by integrating concepts from computer science, software engineering, and artificial intelligence:

Data Structures and Algorithms: Efficient storage, retrieval, and manipulation of financial data.

Database Management: Real-time data synchronization and structured storage using Firebase or SQLite.

Human-Computer Interaction (HCI): Creating intuitive user interfaces that promote usability.

Artificial Intelligence: Incorporating AI modules for forecasting spending patterns enhances the app's capabilities, offering a practical application of machine learning concepts.

For instance, predictive models for expense forecasting can be built using regression algorithms, which are central to AI courses. The project also leverages advanced visualization techniques (e.g., D3.js), emphasizing data communication.

References:

Friedman, J., Hastie, T., & Tibshirani, R. (2001). The Elements of Statistical Learning. Springer.

Nielsen, J. (1993). Usability Engineering. Academic Press.

#### Business

Financial mismanagement can have dire consequences for individuals and organizations. Businesses need accessible tools to track and analyze spending trends without investing in expensive enterprise solutions. The Smart Expense Tracker App:

* Provides **actionable insights** into spending habits, enabling better decision-making.
* Reduces the risk of **overspending**, which is critical for both individuals and small enterprises operating on tight budgets.
* Offers potential for monetization through premium features like AI-based budgeting recommendations or receipt scanning via OCR.

With the global fintech market expected to grow to $324 billion by 2026, such an app aligns with rising consumer demand for affordable, tech-driven financial solutions.

## Problem Statement

1. **Lack of Accessible Financial Tools**: Many existing expense management applications are either too complex for average users or lack essential features like visualizations and notifications for budget management.
2. **Inefficient Spending Awareness**: Individuals often fail to identify overspending trends in time, leading to financial strain. This project aims to provide real-time insights and alerts to help users make informed financial decisions.

# Project Description

Write down with a figure the proposed system.

## Objectives

Why this system is to be developed.

## Scope

The scope of your project.

## What is new in the Proposed Project?

The innovation or novelty of your project.

# Similar System

## Academic

List and discuss at least 5-10 papers from IEEE, ScienceDirect, Springer, and ACM for similar work experience in the domain of your problem. Be sure that each paper you list includes the following points.

1. The main problem statement of the work.
2. How the researchers contributed to solving the problem
3. What main results did the researchers reach?
4. Criticize the paper.
5. figure if possible

## Business Applications

Describe available business applications/products in the market with figures.

# Project Management and Deliverables

## Tasks and Time Plan

We’re using Click-Up for our task management through the whole project. It’s a very powerful software yet user-friendly which makes it the optimal option for us. Here is a breakdown of our project tasks and time plan.

Phase 1: Planning (2 Weeks)

* Define project scope and features
* Finalize the tech stack
* Assign roles and responsibilities among team members

Phase 2: Design (2 Weeks)

* Create wireframes for the app (web and mobile versions)
* Design UI/UX using tools like Figma or Adobe XD

Phase 3: Frontend Development (4 Weeks)

* Set up the project environment (React.js, Flutter, etc.)
* Develop basic navigation and layout
* Implement core features (expense entry, category management)
* Integrate charts for visualizations (Chart.js or D3.js)
* Test and debug the frontend

Phase 4: Backend Development (4 Weeks)

* Set up backend environment (Node.js with Express or Django/Flask)
* Design database schema
* Implement APIs for expense management and budgets
* Add functionality for notifications (Firebase/OneSignal)
* Implement export data feature (CSV/PDF)

Phase 5: Machine learning & Fine Tuning (3 Weeks)

* Fine tune our AI Model for machine learning features
* Integrate AI features for forecasting and recommendations

Phase 6: Integration and Testing (3 Weeks)

* Connect frontend with backend
* Test app functionalities (manual and automated testing)

*  Ensure cross-platform compatibility (web and mobile)
* Optimize app performance

## Budget and Resource Costs

## Our main costs will be allocated to a domain subscription, hosting services, and API integrations.

## Domain and hosting services could cost around 200EGP/month while most cloud services use a pay as you go model.

1. **Supportive Documents**

Add sections covering one or more of the following:

* Dataset.
* Contact documents
* users/survey
* Contacting authors.

# References

20 Reference Minimum (80% Academic)