**DATA ENTRY SYSTEM**

# About The Project

Data entry is undoubtedly one of the most important factors in different business verticals for increasing productivity & mitigating repetitive business task. There are thousands of mistake that can be overcome with simple data entry task since the program allows the user to see in real-time the data entry process as well as the process of data retrieval.

Data entry helps in reducing the stress and also helps in transfer of huge amounts of data in very less time; hence saving time and eventually money. Apart from that, another benefit includes - increase in productivity, accuracy, maximum use of most technology, etc.

We are going to build a data entry system which would cater a large group of users [mainly small scale businesses] keeping in mind of the following things:

* Create a simple UI which a normal PC user can interact with and add, edit and remove data as well as tables.
* Show data visualizations as well as present data in intuitive manner for users.
* Allow multiple accounts on a single instance of the software for different users but a single account for data addition.
* Modification of data dynamically as well as entry of data through structured files.
* Prevention of faulty entries using RegEx and other methods which would act as a second level check on the data entry.

We simply and at the same time lower the chances of false entries making their way into the database, the system will be more successful.

We will be targeting small companies as well as home users who need to maintain data for various small purposes. Since we will be providing different accounts, a single family PC can have for all. For example, the bread-earner of the family can have a budget table and he can add expenses of everyone and everyone else can view them in various manners (tabular, pictorial etc). We will be using encryption techniques to maintain privacy and protect data tampering by different users of the system.

There are a lot of issues but the major ones are:

* Making the UI Intuitive so that even new people to computer do not find it difficult to operate.
* Making complex functionalities simpler by abstracting the overall terminologies.
* Data protection and reduction of redundancy of data is important in tabular method.
* Making it platform independent for users to be able to use on any System and device.
* Showing large data in a visually simple manner for the users to understand easily and comprehend better.
* Dynamic creation of table columns and dynamic entry to facilitate easier and quicker data entry.

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# Tentative Timeline

We will be doing the project in five phases, and each phase will focus on a particular aspect of the program. Below is the detailed information about each of the phase:

Phase I [Research]

First phase will focus on research and learning about the tools that will be required to build the project. This will involve learning about the technologies, testing various options for the same tasks [e.g. different database technologies].

Phase II [Learning]

Once the technologies are finalized, we will be learning the basics of them. Since technologies have a lot more to offer than we will need, we will focus on getting familiar with them and then getting to know just the usage we will be needing. An example of this would be not getting into knowing “joints” in a RDBMS.

Phase III [Backend Development]

Since the project will have two areas where we will require coding; Backend to handle operations and then the User Interface with which the user will interact. We will be building on the backend in the third phase along with taking crucial functional decisions for the User Interface. This phase will not involve any UX design decisions, and will just focus on functional design and development.

Phase IV [UI Development]

Once the project backend is built, we will move onto deciding the design and aesthetics of the user interface along with making decisions to ease the user in interacting with the functions provided. In this phase, we will also be developing the user interface and all the graphic components required by it. We will also be linking backend and UI in this phase.

Phase V [Pre-Production Polishing]

This phase will wrap up the development of the project, and will involve rigorous testing of the same. We will also be taking reviews from people and changing the UI to make it more simpler for use. In this phase, we will also be testing the application on various operating systems and developing for them. Any bugs encountered will be fixed in the same.

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# Requirements

Functional

We require the following functional capabilities from the project:

* Ability to interact, create, modify and delete databases
* Allow creation of a single admin account per system.
* Allow creation of User accounts by the admin.
* Validation of data entries.
* Encryption of data as well as user passwords.
* Master backup of all data.
* Retrieval and pictorial representation of data.

Non-Functional

The following non-functional requirements are there:

* Quick retrieval of data
* Intuitive User Interface
* Minimal lag in database operations
* Visual scalability (how much data can be shown in an intuitive manner)
* Keeping track of space available and giving warning accordingly.

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# Tentative Dependencies

Due to interaction with database and user, the project will have some basic dependencies that will help the Java program interact with the database as well as ease the making of a Graphical User Interface. Below are the two major Java library requirements in the project.

Java

Java is one of the best programming languages and we will be using the same for most of the code that will be written in the project. We will be using it’s Object Oriented nature to foster the development pace.

Database Management System

We will need a database system (such as MySQL, SQLite, MongoDB etc.) to keep a track of the users as well as the data entry by each user in the system. In this way, we can keep a permanent storage of the current configuration.

We will be using Java Database Connectivity Handler to initiate connection with the database and perform all the operations such as insertion, modification and deletion. This will also help us in creating different users and keeping their tables separate from each other. We will be creating a single database for a single user and then he can add multiple tables inside it.

Swing

**Java Swing** is *used to create window-based applications*. It is built on the top of AWT (Abstract Windowing Toolkit) API and entirely written in java. We will be using the same to build our GUI for the user and link the backend operations with the events of the interface.

Marketing

Every entrepreneur is focus on the core abilities than sparing the time on simple & redundant tasks. Large/medium scale organizations prefer to outsource its data entry tasks to reduce the overhead cost of staff, payroll, time and data management, so that the organization/company can focus on growing their business.

Data entry is also very essential for managing huge business sectors or organization to minimize your administrative burdens, save on costs and use the time of your resources for core business activities. Apart from that, another benefit includes - increase in productivity, accuracy, maximum use of most technology, etc.

The cost of product would be minimal but the highest costs would incur in maintenance and support to the users of the product.