

# **TechTrek 2022 Challenge Statement**

6th May 2022

## Introduction

At any point in time, DBS works on multiple projects in the hopes of serving our clients better. Each project's lead manages a large budget while juggling various resources. It is the bank's Central Function team's job to come up with tools and processes to make life easier for internal teams.

## Challenge Statement

Your task is to create a simplified full-stack budget management application that could assist the Project Management Office (PMO) in carrying out their duties efficiently. This **must be a web application**.

\*For every Frontend task, there will be a matching Backend task as indicated by the numbering. E.g.

Basic Requirements (Frontend)	Basic Requirements (Backend)
User must be able to login [1]	Server must be able to authenticate a user's identity [1]

### Basic Application Requirements (Frontend):

- You must render a login page
  - User must be able to login [1]
- You must render a dashboard
  - Users must be able to view all projects under current user [2]
- Users must be able to:
  - Add new business expense into the selected project. [3]
  - View all business expenses under selected project. [4]
  - Edit individual business expense of the selected project. [5]
  - Remove individual business expense from the project. [6]

### **Basic Application Requirements (Backend):**

- You must set up a valid authentication API
  - Server must be able to authenticate a user's identity [1]
- You must set up the respective API with the following functionalities:
  - Return a list of projects from the **Project** table [2]
  - Insert business expense created from frontend into **Expense** table [3]
  - Return a list of all expenses from the **Expense** table [4]
  - Update business expense edited from frontend into **Expense** table [5]
  - Delete business expense removed from frontend into **Expense** table [6]

### **Basic Application Requirements (Integrate):**

- Integration is a crucial requirement for this hackathon. The front end and back end should be ***integrated*** seamlessly.

### **Advanced Requirements (Optional, in any order, but good to have):**

- Data visualization through charts and graph
- Include JSON Web Tokens in your authentication
- Features that enhance the user journey

### **Optional Technical Depth (showcase your skill set):**

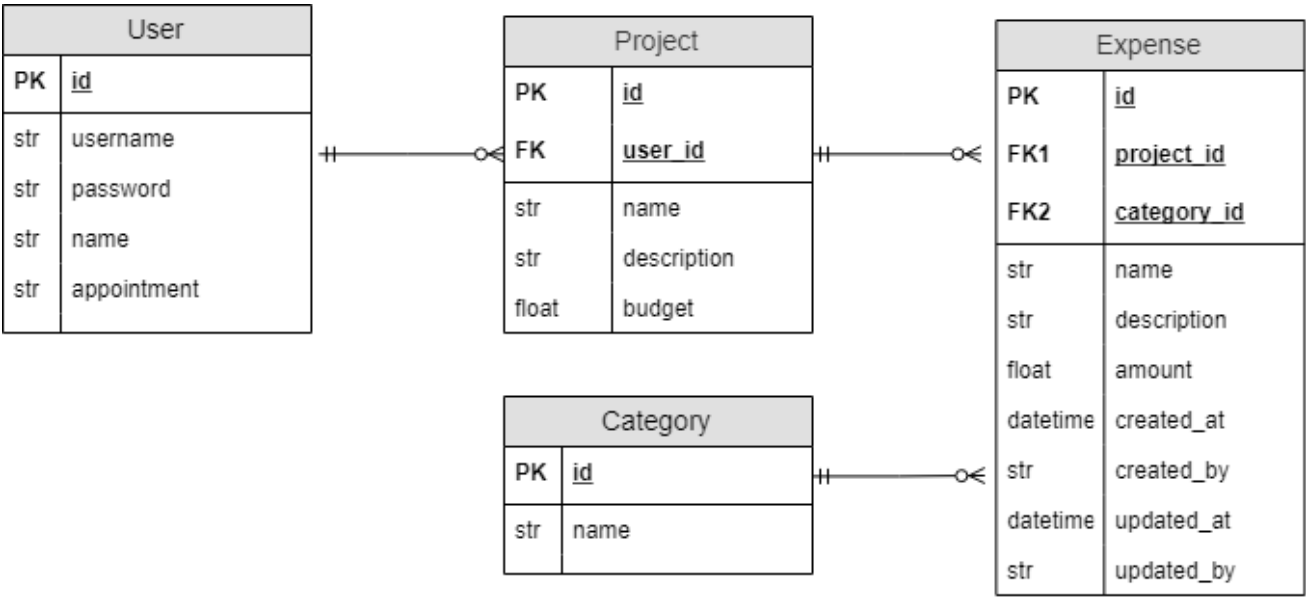
- AWS/GCP to deploy your application to the cloud

Data provided

You will be given:

- Data in *JSON* and *SQL* format
  - The entries provided are not exhaustive and you can add more to suit the needs of your application
  - Entity Relationship Diagram (ERD). The following ER diagram is provided as a reference. We have provided datasets for **User**, **Project**, **Expense** and **Category** entities.
  - The **Project** and **Expense** table provided can be used to show how the CRUD is being implemented. These tables are part of the requirements [2-6]. You are free to add new attributes to match any new features you wish to introduce; teams **MAY** make changes so long as tasks requirements are met.

ERD Diagram



## Database Example

**Category Table**

Id	Name
1	Production

**User Table**

Id	Username	Password	Name	Appointment/Role
1	user101	123456	Jacky	Project Lead

**Project Table**

Id	User_id	Name	Description	Budget
1	4	RTF	Realtime Face Recognition	12,000

**Expense Table**

Id	1
Project_id	2
Category_id	2
Name	Server Maintenance
Description	Server maintenance and upgrading work to incorporate BC plans
Amount	30000
Created_at	2021-11-04T16:00:00.000Z
Created_by	Jacky
Updated_at	2021-11-06T16:00:00.000Z
Updated_by	Jacky

## Example

These are examples of Expense, Category and Projects:

		Remarks
Expenses	<ul style="list-style-type: none"> <li>• Utilities</li> <li>• Payroll</li> <li>• Insurance</li> <li>• Transport</li> <li>• Equipment</li> <li>• Meal allowance</li> <li>• Bonus</li> <li>• Benefits allowance</li> <li>• Advertising</li> <li>• Legal fees</li> <li>• Rental</li> </ul>	
Category	<ul style="list-style-type: none"> <li>• Production</li> <li>• Operating</li> <li>• Financial</li> <li>• Vendor</li> <li>• Manpower</li> <li>• Software</li> <li>• Hardware</li> </ul>	
Projects	<ul style="list-style-type: none"> <li>• Paylah</li> <li>• Marketplace</li> </ul>	