CareerHub – Job Board Management System

# 🚀 Objective

Build a menu-driven Python application that simulates a real-world job board system where users can register, companies can post jobs, and users can apply for jobs. The data is stored in a Microsoft SQL Server database, using object-oriented design and custom exceptions.

# 📁 Project Structure

Organized into folders:

careerhub/  
├── dao/ → Data Access Layer  
├── entity/ → Data Models (POJO style)  
├── exception/ → Custom exception classes  
├── util/ → DB connection utility  
├── config/ → db.properties (DB credentials)  
└── main\_module.py → Main menu-based driver

# 🛢️ Database Tables

Designed 4 main tables: Users, Companies, Jobs, Applications.  
Included primary & foreign keys, and inserted test data.

# 📦 Entity Classes

Mapped each table to Python classes: User, Company, Job, Application with appropriate attributes.

# 🔌 DAO Layer

Each DAO class (UserDAO, CompanyDAO, JobDAO, ApplicationDAO) handles database CRUD operations using pyodbc.

# 🔐 DB Connection Utility

`db\_conn\_util.py` reads from `db.properties` and manages a centralized database connection.

# ⚠️ Custom Exceptions

Handled validation via 5 user-defined exceptions:  
- InvalidEmailFormatException  
- InvalidSalaryException  
- UserNotFoundException  
- CompanyNotFoundException  
- JobNotFoundException

# 📋 Main Menu Functionalities

The `main\_module.py` includes these menu options:  
1. Register New User  
2. View All Users  
3. Add Company  
4. View All Companies  
5. Post Job  
6. View All Jobs  
7. Apply for a Job  
8. View All Applications  
0. Exit

# 🎯 Summary

CareerHub is a full-featured backend job portal that demonstrates strong understanding of database design, Python OOP, modular coding, and exception handling.