|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Mini Project - 1**     |  |  | | --- | --- | | **Student Name/ID Number:** | **Francis Roel L. Abarca – BDSE-0922-113** | | **Unit Number and Title:** | ACWD Module 4 – Database Design & Implementation | | **Academic Year:** | **2022-2023** | | **Unit Assessor:** |  | | **Project Title:** | Database Design for Community Portal | | **Issue Date:** |  | | **Submission Date:** | **January 18, 2023** | | **Internal Verifier Name:** |  | | **Date:** | **January 16, 2023** |              |  | | --- | | **Learner declaration** | |  | | I certify that the work submitted for this assignment is my own and research sources are fully acknowledged.      Student signature: Date: | | |
| |  | | --- | | **Purpose of this project** | | **Purpose of this project**  To demonstrate your capabilities in the following areas:  • Design a Database for Community Portal | | **Submission Format** | | 1. Description of Entities in the database 2. Screen capture of the ER Diagram 3. Screen capture of Data 4. Screen capture of Normalized Database Design 5. Documentation of Relationships | | **Project Brief & Guidance** | | **Scenario:**    **Refer to the Project Scenario for the Module Project**  You have been approached by ‘ABC Jobs Pte Ltd’ as a website developer to develop a community portal for Software Developers. The project will be carried over through Module 3, Module 4, Module 5 and Capstone project. For this module the scope is to Design, Develop, Implement & Document Apache Struts Framework Website.  The Scope of the Project is to design a Community Portal Similar to Linkedin.com. Users will be able to register in the portal using the Registration Page. Users of the portal can search for other users using various parameters such as First Name, Last Name, Company Name, City & Country. Users will be able to view the Public Profile of users after searching them. The portal allow users to login, request for forgotten password and Update their profile information    The scope of the mini project is to design the database.    **The overview of the project is as below**  There are 2 types of users in this Community portal. They are   1. Software Programmer 2. Administrator     **Software Programmer should be able to perform following functions in the portal** | |
| |  | | --- | | 1. Allow the programmers to register in the portal, show a thank you page & send a registration confirmation email. 2. Search & Find Other Programmers after login and view their profile. 3. Provide Login Page 4. Provide password retrieval functionality. 5. Update their Profile after logging in.     Following Functionality is part of Database Design & Will be enhanced as features as required in the Capstone Project, Depending on time availability.     1. Send Messages to Each Other on the Portal 2. Create Threads & Post Replies to a Thread 3. Post Job Opportunities in the Portal     **Administrator should be able to perform following functions in the portal**   1. Administer user data. 2. Send bulk email inviting programmers to register on the community portal     **The portal consist of the following Key pages (For Reference)**   1. Community Portal Home Page 2. Registration Page 3. Registration Confirmation Page 4. Update Profile Page 5. Search Users Page 6. List Search Results 7. Public Profile Page 8. Registration Confirmation Email 9. Login Page 10. Forget Password Page 11. Design the Forget Password Confirmation Page     Following Functionality is part of Database Design and will not be part of development & Will be enhanced as features are required in the Capstone Project, Depending on time availability.   1. Send Messages 2. Read Messages 3. Post in Message Board 4. List Message Board 5. Read A Thread 6. Post Job Opportunities 7. List Job Opportunities & Responses     **The scope of this assignment**  The scope is to design the community portal database.   1. Identify the Entities in the Community Portal Database 2. Create ER Diagram for the Community Portal Database | |
| |  | | --- | | 1. Create Sample data for all tables in the community portal (At least 3 tables) 2. Normalize the complete database to 3rd normal form (Provide screen capture of the normalization done) 3. Identify the relationships in tables & document them | |

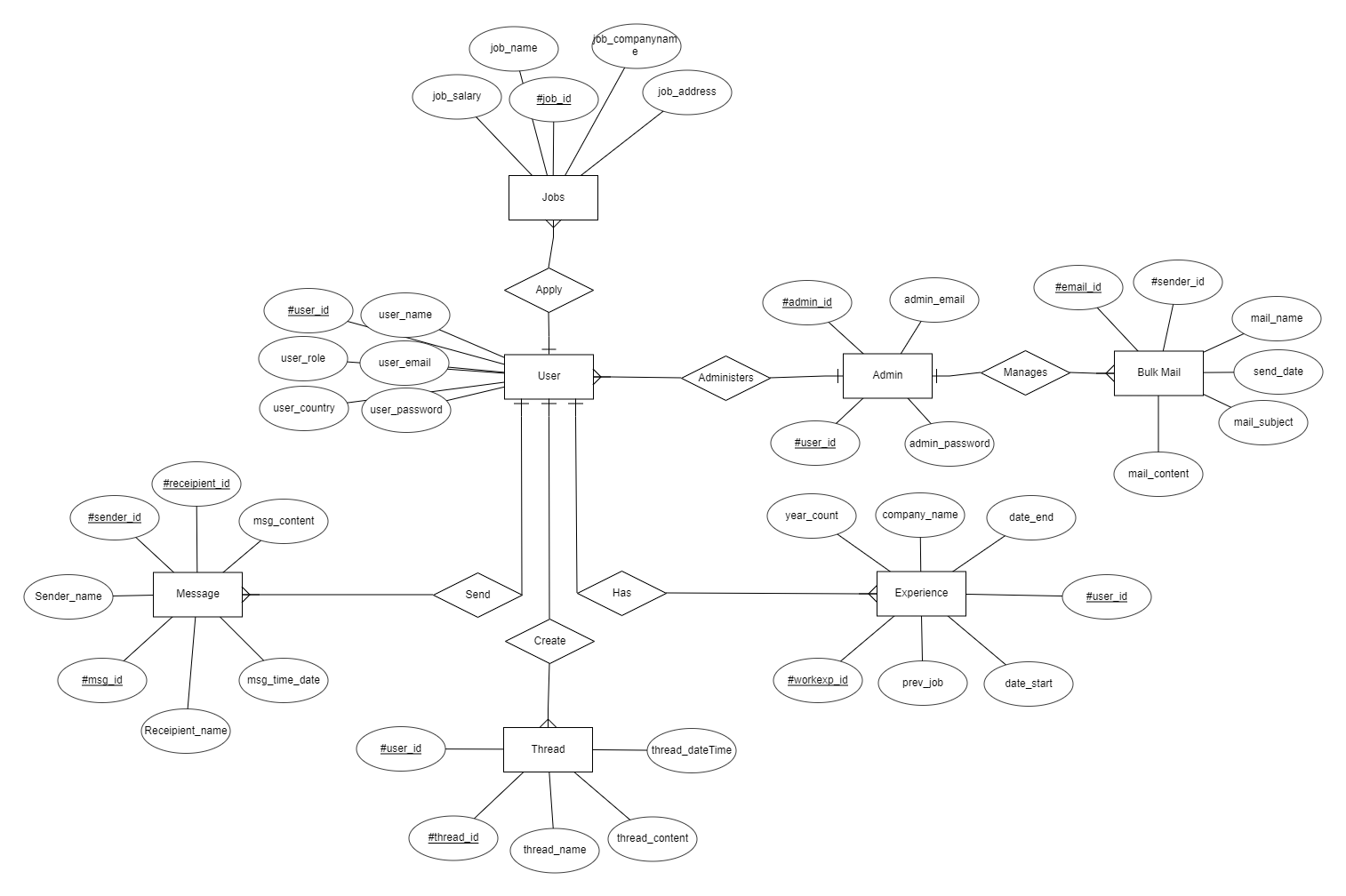
Answer:

1. Entity

|  |  |  |
| --- | --- | --- |
| **Entity** | **Description** | **Page/Function** |
| Users | Contains information relevant to the user during log-in sessions and profile viewing. | Log-in, Registration |
| Jobs | Contains information about the Jobs available currently. | Search, Profile Page |
| Work Experience | Contains information about the user’s experience on specific jobs. | Profile Page |
| Admin | Contains the list of people who have administrative privileges to the website. | Profile Page, Mail Manager |
| Message | Contains the messages and conversations they have with the users and companies in the Community Portal. | Messages |
| Thread | Provides users a space to discuss and talk about work related stuff inside the Community Portal. | Thread Page |
| Bulk Mail | Contains the list of bulk emails that are sent to users | Mail Manager |

1. Diagram

Entity-Relationship Diagram



1. Sample Table

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Unnormalized Form (UNF) | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| #user\_id | user\_name | user\_email | user\_password | user\_role | user\_country | #job\_id | job\_name | job\_companyname | job\_address | job\_salary | #workexp\_id | prev\_job | year\_count | company\_name | date\_start | date\_end |
| 1 | Adam Weston | [adamtheman@abc.org](mailto:adamtheman@abc.org) | adamman1927 | member | United States | 1 | Junior Software Engineering | Apple Inc. | California, United States | $40,000/month | 1 | iOS App Development | 1 | Google | 11/15/2019 | 11/10/2021 |
| 2 | Imran Kalashnikov | [Imrankalashkov20@gmail.com](mailto:Imrankalashkov20@gmail.com) | ak47gogogo123 | member | Ukraine | 2 | Senior Software Engineering | NVIDIA | California, United States | $200,000/month | 2 | Junior Software Developer | 1 | NVIDIA | 7/11/2017 | 7/8/2019 |
| 3 | Tim Adams | [timthegreat12@linkedin.com](mailto:timthegreat12@linkedin.com) | mariaadams21 | member | Canada | 3 | Junior Software Engineering | Microsoft | Washington D.C., United States | $38,000/month | 3 | iOS App Development | 4 | Google | 5/7/2016 | 11/19/2020 |
| 4 | Alexis Mira | [alexisthemira@outlook.com](mailto:alexisthemira@outlook.com) | allanmira92 | member | Spain | 4 | Senior Software Engineering | Google | California, United States | $230,000/month | 4 | Junior Software Developer | 4 | Google | 6/12/2014 | 7/19/2018 |
| 5 | Raymond Ken | [raykensoft@outlook.com](mailto:raykensoft@outlook.com) | microken89 | admin | United States | 5 | Senior Software Engineering | Tesla | Texas, United States | $250,000/month | 5 | Leader, Machine Learning Team | 3 | Tesla | 2/11/2013 | 4/19/2016 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| #msg\_id | #sender\_id | sender\_name | #recipient\_id | receipient\_name | msg\_time\_date | msg\_content |  |  |  |  |  |  |  |  |  |  |
| 1 | 2 | Imran Kalashnikov | 5 | Raymond Ken | 12/11/2022 at 2:13pm | Hi! I would like to inquire about any hiring offers currently available for the Autonomous Engineering Field? |  |  |  |  |  |  |  |  |  |  |
| 2 | 4 | Alexis Mira | 5 | Raymond Ken | 12/20/2022 11:12am | Hi! I would like to ask about the deal between Tesla and Google partnership? |  |  |  |  |  |  |  |  |  |  |
| 3 | 4 | Alexis Mira | 5 | Adam Weston | 12/24/2022 10:34am | I would like to ask for permission if I could fork one of your projects? |  |  |  |  |  |  |  |  |  |  |
| 4 | 1 | Adam Weston | 5 | Raymond Ken | 12/25/2022 3:11pm | Hi! I would like to work with your company? When will you guys be hiring? |  |  |  |  |  |  |  |  |  |  |
| 5 | 3 | Tim Adams | 2 | Imran Kalashnikov | 12/30/2022 4:17pm | Hi! We would like to utlize the CUDA architecture onto our new Azure systems. |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| #admin\_id | #user\_id | admin\_email | admin\_password |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 | 5 | [raykensoft@outlook.com](mailto:raykensoft@outlook.com) | microken89 |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| #email\_id | #sender\_id | send\_date | mail\_subject | mail\_content |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 | 1 | 5/18/2022 | Hiring! | ABC Jobs is hiring for a new Systems Engineer! Apply Now! |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 | 1 | 6/12/2022 | Apple joins the mix! | Big news! Apple has recently added their roster of companies into our Jobs Listing page! Go check them out! |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 | 1 | 6/24/2022 | Anniversary! | Here at ABC Jobs, we would like to give you a huge thank you for supporting our company for over 5 years! |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 | 1 | 7/4/2022 | Happy Independence Day! | Here at ABC Jobs, we would like to celebrate a Happy Independence Day to all our American members! |  |  |  |  |  |  |  |  |  |  |  |  |
| 5 | 1 | 11/25/2022 | Happy Thanksgiving! | Here at ABC Jobs, we would like celebrate Thanksgiving day to all the members! |  |  |  |  |  |  |  |  |  |  |  |  |

1. Normalization of the Data

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1st Normal Form (1NF) | |  | |  |  |  |  |  |  | |  |  |  |
| #user\_id | user\_name | user\_email | | user\_password | user\_role | user\_country |  |  |  | |  |  |  |
| 1 | Adam Weston | [adamtheman@abc.org](mailto:adamtheman@abc.org) | | adamman1927 | member | United States |  |  |  | |  |  |  |
| 2 | Imran Kalashnikov | [Imrankalashkov20@gmail.com](mailto:Imrankalashkov20@gmail.com) | | ak47gogogo123 | member | Ukraine |  |  |  | |  |  |  |
| 3 | Tim Adams | [timthegreat12@linkedin.com](mailto:timthegreat12@linkedin.com) | | mariaadams21 | member | Canada |  |  |  | |  |  |  |
| 4 | Alexis Mira | [alexisthemira@outlook.com](mailto:alexisthemira@outlook.com) | | allanmira92 | member | Spain |  |  |  | |  |  |  |
| 5 | Raymond Ken | [raykensoft@outlook.com](mailto:raykensoft@outlook.com) | | microken89 | admin | United States |  |  |  | |  |  |  |
|  |  |  | |  |  |  |  |  |  | |  |  |  |
| #user\_id | #job\_id | job\_name | | job\_companyname | job\_address | job\_salary | workexp\_id | prev\_job | year\_count | | company\_name | date\_start | date\_end |
| 1 | 1 | Junior Software Engineering | | Apple Inc. | California, United States | $40,000/month | 1 | iOS App Development | 1 | | Google | 11/15/2019 | 11/10/2021 |
| 2 | 2 | UX Researcher | | NVIDIA | California, United States | $200,000/month | 2 | Junior Software Developer | 1 | | NVIDIA | 7/11/2017 | 7/8/2019 |
| 3 | 3 | Registered Medical Technologist | | Microsoft | Washington D.C., United States | $38,000/month | 3 | iOS App Development | 4 | | Google | 5/7/2016 | 11/19/2020 |
| 4 | 4 | Civil Engineer | | Google | California, United States | $230,000/month | 4 | Junior Software Developer | 4 | | Google | 6/12/2014 | 7/19/2018 |
| 5 | 5 | Senior System Administrator | | Tesla | Texas, United States | $250,000/month | 5 | Leader, Machine Learning Team | 3 | | Tesla | 2/11/2013 | 4/19/2016 |
|  |  |  | |  |  |  |  |  |  | |  |  |  |
|  |  |  | |  |  |  |  |  |  | |  |  |  |
| 2nd Normal Form (2NF) | |  | |  |  |  |  |  |  | |  |  |  |
|  |  |  | |  |  |  |  |  |  | |  |  |  |
| #user\_id | user\_name | user\_email | | user\_password | user\_role | user\_country |  |  |  | |  |  |  |
| 1 | Adam Weston | [adamtheman@abc.org](mailto:adamtheman@abc.org) | | adamman1927 | member | United States |  |  |  | |  |  |  |
| 2 | Imran Kalashnikov | [Imrankalashkov20@gmail.com](mailto:Imrankalashkov20@gmail.com) | | ak47gogogo123 | member | Ukraine |  |  |  | |  |  |  |
| 3 | Tim Adams | [timthegreat12@linkedin.com](mailto:timthegreat12@linkedin.com) | | mariaadams21 | member | Canada |  |  |  | |  |  |  |
| 4 | Alexis Mira | [alexisthemira@outlook.com](mailto:alexisthemira@outlook.com) | | allanmira92 | member | Spain |  |  |  | |  |  |  |
| 5 | Raymond Ken | [raykensoft@outlook.com](mailto:raykensoft@outlook.com) | | microken89 | admin | United States |  |  |  | |  |  |  |
|  |  |  | |  |  |  |  |  |  | |  |  |  |
| #user\_id | #job\_id | job\_name | | job\_companyname | job\_address | job\_salary |  |  |  | |  |  |  |
| 1 | 1 | Junior Software Engineering | | Apple Inc. | California, United States | $40,000/month |  |  |  | |  |  |  |
| 2 | 2 | Senior Software Engineering | | NVIDIA | California, United States | $200,000/month |  |  |  | |  |  |  |
| 3 | 3 | Junior Software Engineering | | Microsoft | Washington D.C., United States | $38,000/month |  |  |  | |  |  |  |
| 4 | 4 | Senior Software Engineering | | Google | California, United States | $230,000/month |  |  |  | |  |  |  |
| 5 | 5 | Senior Software Engineering | | Tesla | Texas, United States | $250,000/month |  |  |  | |  |  |  |
|  |  |  | |  |  |  |  |  |  | |  |  |  |
| #user\_id | workexp\_id | prev\_job | | year\_count | company\_name | date\_start | date\_end |  |  | |  |  |  |
| 1 | 1 | iOS App Development | | 1 | Google | 11/15/2019 | 11/10/2021 |  |  | |  |  |  |
| 2 | 2 | Junior Software Developer | | 1 | NVIDIA | 7/11/2017 | 7/8/2019 |  |  | |  |  |  |
| 3 | 3 | iOS App Development | | 4 | Google | 5/7/2016 | 11/19/2020 |  |  | |  |  |  |
| 4 | 4 | Junior Software Developer | | 4 | Google | 6/12/2014 | 7/19/2018 |  |  | |  |  |  |
| 5 | 5 | Leader, Machine Learning Team | | 3 | Tesla | 2/11/2013 | 4/19/2016 |  |  | |  |  |  |
|  |  |  | |  |  |  |  |  |  | |  |  |  |
| 3rd Normal Form (3NF) | |  | |  |  |  |  |  |  | |  |  |  |
| Users | |  | |  |  |  |  |  |  | |  |  |  |
|  | |  |  |  |  |  |  | |  |  |  |
| #user\_id | user\_name | user\_password | | user\_role |  |  |  |  |  | |  |  |  |
| 1 | Adam Weston | adamman1927 | | member |  |  |  |  |  | |  |  |  |
| 2 | Imran Kalashnikov | ak47gogogo123 | | member |  |  |  |  |  | |  |  |  |
| 3 | Tim Adams | mariaadams21 | | member |  |  |  |  |  | |  |  |  |
| 4 | Alexis Mira | allanmira92 | | member |  |  |  |  |  | |  |  |  |
| 5 | Raymond Ken | microken89 | | admin |  |  |  |  |  | |  |  |  |
|  |  |  | |  |  |  |  |  |  | |  |  |  |
| Jobs | |  | |  |  |  |  |  |  | |  |  |  |
|  | |  |  |  |  |  |  | |  |  |  |
| #user\_id | #job\_id | job\_name | | job\_companyname | job\_address | job\_salary |  |  |  | |  |  |  |
| 1 | 1 | Junior Software Engineering | | Apple Inc. | California, United States | $40,000/month |  |  |  | |  |  |  |
| 2 | 2 | Senior Software Engineering | | NVIDIA | California, United States | $200,000/month |  |  |  | |  |  |  |
| 3 | 3 | Junior Software Engineering | | Microsoft | Washington D.C., United States | $38,000/month |  |  |  | |  |  |  |
| 4 | 4 | Senior Software Engineering | | Google | California, United States | $230,000/month |  |  |  | |  |  |  |
| 5 | 5 | Senior Software Engineering | | Tesla | Texas, United States | $250,000/month |  |  |  | |  |  |  |
|  |  |  | |  |  |  |  |  |  | |  |  |  |
| Work Experience | |  | |  |  |  |  |  |  | |  |  |  |
|  | |  |  |  |  |  |  | |  |  |  |
| #user\_id | workexp\_id | prev\_job | | year\_count | company\_name | date\_start | date\_end |  |  | |  |  |  |
| 1 | 1 | iOS App Development | | 1 | Google | 11/15/2019 | 11/10/2021 |  |  | |  |  |  |
| 2 | 2 | Junior Software Developer | | 1 | NVIDIA | 7/11/2017 | 7/8/2019 |  |  | |  |  |  |
| 3 | 3 | iOS App Development | | 4 | Google | 5/7/2016 | 11/19/2020 |  |  | |  |  |  |
| 4 | 4 | Junior Software Developer | | 4 | Google | 6/12/2014 | 7/19/2018 |  |  | |  |  |  |
| 5 | 5 | Leader, Machine Learning Team | | 3 | Tesla | 2/11/2013 | 4/19/2016 |  |  | |  |  |  |
|  |  |  | |  |  |  |  |  |  | |  |  |  |
| User\_Details | |  | |  |  |  |  |  |  | |  |  |  |
|  | |  |  |  |  |  |  | |  |  |  |
| #user\_id | user\_email | user\_country | |  |  |  |  |  |  | |  |  |  |
| 1 | [adamtheman@abc.org](mailto:adamtheman@abc.org) | United States | |  |  |  |  |  |  | |  |  |  |
| 2 | [Imrankalashkov20@gmail.com](mailto:Imrankalashkov20@gmail.com) | Ukraine | |  |  |  |  |  |  | |  |  |  |
| 3 | [timthegreat12@linkedin.com](mailto:timthegreat12@linkedin.com) | Canada | |  |  |  |  |  |  | |  |  |  |
| 4 | [alexisthemira@outlook.com](mailto:alexisthemira@outlook.com) | Spain | |  |  |  |  |  |  | |  |  |  |
| 5 | [raykensoft@outlook.com](mailto:raykensoft@outlook.com) | United States | |  |  |  |  |  |  | |  |  |  |
|  |  |  | |  |  |  |  |  |  | |  |  |  |
|  | | |  | | | | | | |  | | | |  |  |  |  |

1. Identify the relationships in tables

