

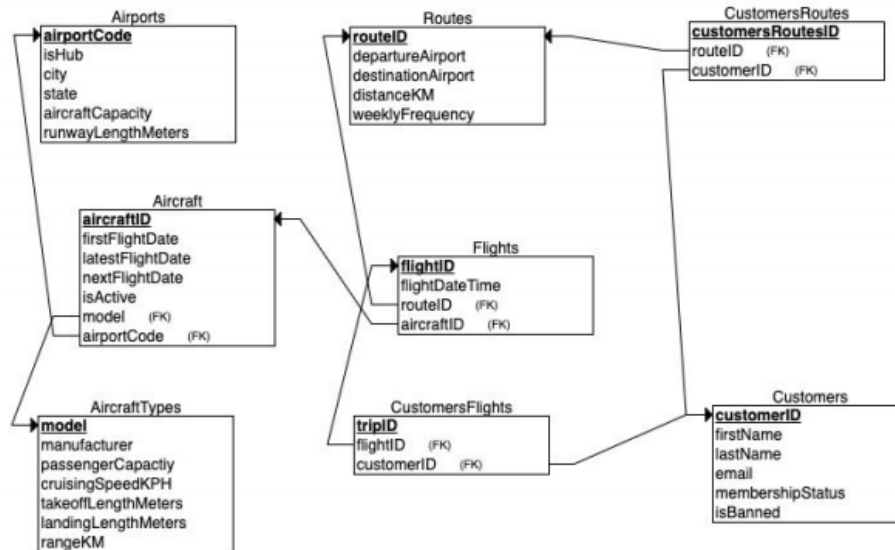
# Project Step 2 Final Version: ERD & Schema

Team Members: Christopher Eckerson & Kenny Seng

## Feedback by Peer Reviewer (Verbatim via Piazza)

Terrence Paz Dominguez-Smith 4 days ago

- Does the overview describe what problem is to be solved by a website with DB back end?
  - Yes, the overview describes having a database to keep track of job posts and applications for companies and individuals.
- Does the overview list specific facts?
  - The overview lists a few facts about the amount of posts per second and the number of resumes that could be loaded.
- Are at least four entities described and does each one represent a single idea to be stored as a list?
  - There are four entities. It does contain one single idea to be stored as a list for each entity.
- Does the outline of entity details describe the purpose of each, list attribute data types and constraints and describe relationships between entities? Does the outline clearly indicate which entities (tables) will be implemented and which team member is primarily assigned to the associated page(s)?
  - The outline does indicate which tables will be implemented and who is responsible for each page. The outline does describe the purpose for each entity.
- Are 1:M relationships correctly formulated? Is there at least one M:M relationship?
  - There are two 1:M relationships and are correctly formatted. There is at least one M:M relationship.
- Is there consistency in a) naming between overview and entity/attributes b) entities plural, attributes singular c) use of capitalization for naming?
  - There is a consistent naming convention for the entity and attributes in regards to capitalization. I would only recommend changing the entities to plural such as Employers, Posts, Applicants, Resumes.
- **The Schema may need to be revised to represent the Primary and Foreign Keys**
- Example from Group 115:



Peyton Fitzgerald 3 days ago

- Does the overview describe what problem is to be solved by a website with DB back end?  
Yes, it does - they're describing a problem concerned with job postings and applications.
- Does the overview list specific facts?  
The overview is both descriptive of the problem and how the database will function, as well as inclusive of specific facts about the number of posts/resume uploads that are expected.
- Are at least four entities described and does each one represent a single idea to be stored as a list?  
Yes, there are 4 entities listed, and each is concerned with a single idea as described in the question.
- Does the outline of entity details describe the purpose of each, list attribute data types and constraints and describe relationships between entities? Does the outline clearly indicate which entities (tables) will be implemented and which team member is primarily assigned to the associated page(s)?  
There are 4 entities, and each of them describes the purpose, as well as data types/constraints, and the relationships with other entities. The outline also describes which will be implemented, and there is a clear description of who is assigned which page.
- Are 1:M relationships correctly formulated? Is there at least one M:M relationship?  
Yes, 1:M relationships are correctly formulated and there is at least one M:M relationship.
- Is there consistency in a) naming between overview and entity/attributes b) entities plural, attributes singular c) use of capitalization for naming?  
a) Yes, the naming convention is consistent - they use snake case throughout the Document.  
b) **Entities are currently singular and need to be plural.** However, the attributes are correctly listed as singular at the moment.

c) Capitalization is being used correctly in the names.

As mentioned by Terrence above, make sure to look at how the other Schemas were done. You need to show arrows going from a given foreign key to the field of the entity from which it originates (look at routeID in Flights where it is a FK, and how its connected to routeID in Routes where it is a PK, in Terrence's example image).

Samuel 2 hours ago

- Does the overview describe what problem is to be solved by a website with DB back end?
  - Yes. The database seeks to provide a way to keep track of job applications with a job board. It simplifies both the process of posting a job on the part of the employer and applying for a job on the part of the applicant.
- Does the overview list specific facts?
  - The most specific description seems to be the need for scalability for a large user base and a high rate of traffic.
- Are at least four entities described and does each one represent a single idea to be stored as a list?
  - Yes. Employer, Post, Applicant, and Resume each represent a single idea that can be stored as a list. The entities could be changed to plurals to adhere to the style guidelines but they are functional as is.
- Does the outline of entity details describe the purpose of each, list attribute datatypes and constraints and describe relationships between entities? Does the outline clearly indicate which entities (tables) will be implemented and which team member is primarily assigned to the associated page(s)?
  - Each entity has a short description of its purpose. Each entity also has listed datatypes and constraints as well as relationship descriptions with other entities. It seems to be missing the division of labor between team members, I may be missing this so if its there disregard but it doesn't stick out if it is present.
- Are 1:M relationships correctly formulated? Is there at least one M:M relationship?
  - There are several correctly formulated 1:M relationships and a correct M:M relationship.
- Is there consistency in a) naming between overview and entity/attributes b) entities plural, attributes singular c) use of capitalization for naming?
  - a) The overview and the entities share the same names. There is mention of a "job board" but I think that is more a description of the overall use rather than any specific entity. There are no other references to names in the overview that are not described in detail as entities.
  - b) The entities are all singular and the attributes are singular. You may want to **change the entities to plural**, but they should still work as is.
  - c) All entities are capitalized, and all attributes are lower case
- As a note I also agree with Terrance about the schema, you have most of the parts there you just need to **connect Foreign Keys to Primary Keys with arrows** to show relationships and relationship tables

Ryan Davis 1 hour ago

- Does the overview describe what problem is to be solved by a website with DB back end?
  - Yes it does, its basically a job posting board for companies and prospective employees
- Does the overview list specific facts?
  - Yes, using Indeed as an example 175M posts and 10 posts per second (ambitious)

- Are at least four entities described and does each one represent a single idea to be stored as a list?
  - Yes, employer, post, resume, and applicants - all separate ideas
- Does the outline of entity details describe the purpose of each, list attribute datatypes and constraints and describe relationships between entities? Does the outline clearly indicate which entities (tables) will be implemented and which team member is primarily assigned to the associated page(s)?
  - Each entity has its details, attributes, and relationships described, however there is no place assigning team members to a page.
- Are 1:M relationships correctly formulated? Is there at least one M:M relationship?
  - Yes there are a number of 1:M relationships that are well-formed as well as a M:M relations between post and resume.
- Is there consistency in a) naming between overview and entity/attributes b) entities plural, attributes singular c) use of capitalization for naming?
  - Yes, this all looks consistent

### **Actions based on Feedback**

Based on student feedback, it was mentioned that our schema needed to include arrows to show relationships between tables and to identify the primary & foreign keys. So the schema was updated to include that missing component.

### **Upgrades to Draft Version**

Based on the question on consistency, part b (entities plural, attributes singular), we updated the design to now list entities as plural.

### **Current Version**

a) Fixes based on Feedback from Step 1:

- Incorrect 1:M/M:M relationships
  - Applicants 1:M Resumes
  - Resumes M:M Posts
  - Posts M:1 Employers

b) Project Outline and Database Outline - Updated Version:

- Assignment of responsibilities/portions of database:
  - Chris: Applicants / Resumes
  - Kenny: Employers / Posts

**Project Title:** Job Board Database

**Problem/Overview:** Keeping track of job applications for larger-scale companies with a large number of applicants can be difficult for a small team. This database will provide a job board for both employers and employees to submit multiple applications and job posts into the database. This database would need to be very scalable to meet the current demands of similar applications on the market. Using Indeed as an example, we can expect that for a similar system, from their ["About Indeed"](#), that the database could have up to millions of resumes uploaded (currently 175M) and up to 10 posts per second\*.

**Team Member Assigned Responsibilities:**

- Chris will manage the Applicants and Resumes entities.
- Kenny will manage the Employers and Posts entities.
- Together they will design website interface

## DATABASE OUTLINE:

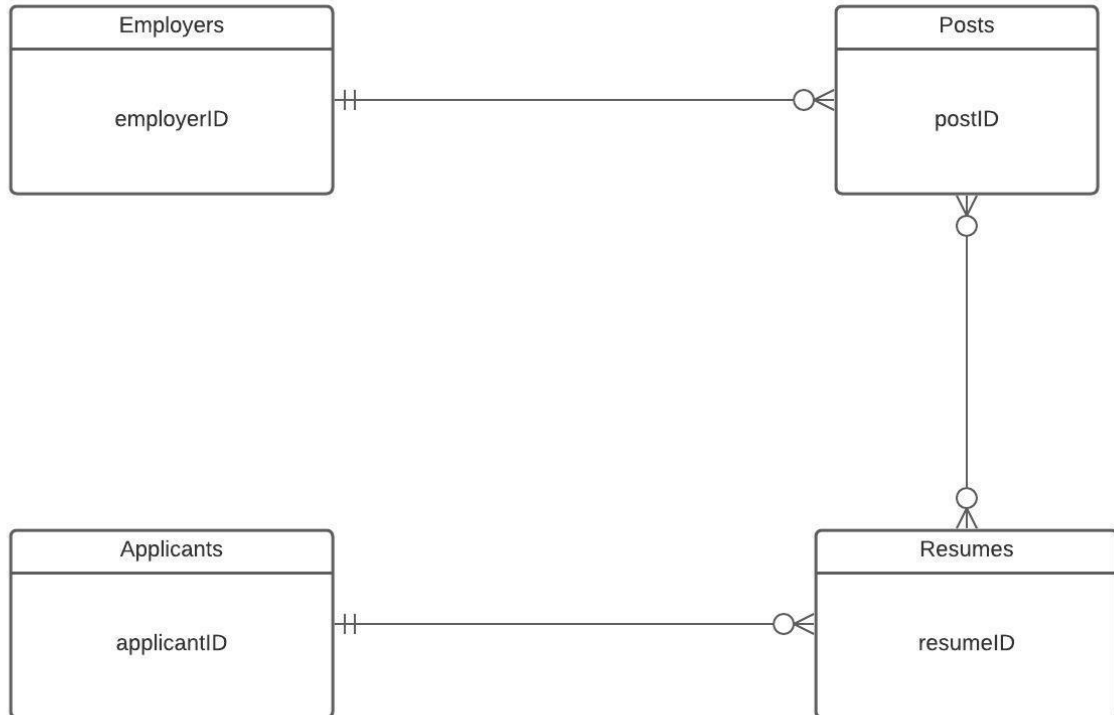
- **Employers:** Records the employer information
  - employerID: int, auto\_increment, unique, not NULL
  - businessName: varchar, not NULL
  - email: varchar(100), not NULL
  - phone: int(11)
  - address: varchar(256), not NULL
  - city: varchar(100), not NULL
  - state: char(2), not NULL
  - country: char(2), not NULL
  - zipCode: varchar(16), not NULL
  - Relationship: a 1:M relation to Post
- **Posts:** A single job post
  - postID: int, auto\_increment, unique, not NULL
  - description: varchar(150), not NULL
  - employerID: foreign key, int, not NULL
  - Relationship: M:M Resume, M:1 Employer
- **Applicants:** Records the applicant's information
  - applicantID: int, auto increment, unique, not NULL
  - firstName: varchar(100), not NULL
  - lastName: varchar(100), not NULL
  - email: varchar(100), not NULL
  - phone: int(11)
  - address: varchar(256), not NULL
  - city: varchar(100), not NULL
  - state: char(2), not NULL
  - country: char(2), not NULL
  - zipCode: varchar(16), not NULL
  - resume:
  - Relationship: 1:M relation to Resume
- **Resumes:** Stores the uploaded file information of the Applicant Resume
  - resumeID: int auto increment, unique, not NULL
  - applicantID: foreign key, int, not NULL
  - fileLocation: varchar(250), not NULL
  - Relationship: M:1 relation to Applicant and M:M to Post

### c) Entity-Relationship Diagram:

ER Diagram:

Job Board Database Project

Members: Christopher Eckerson & Kenny Seng

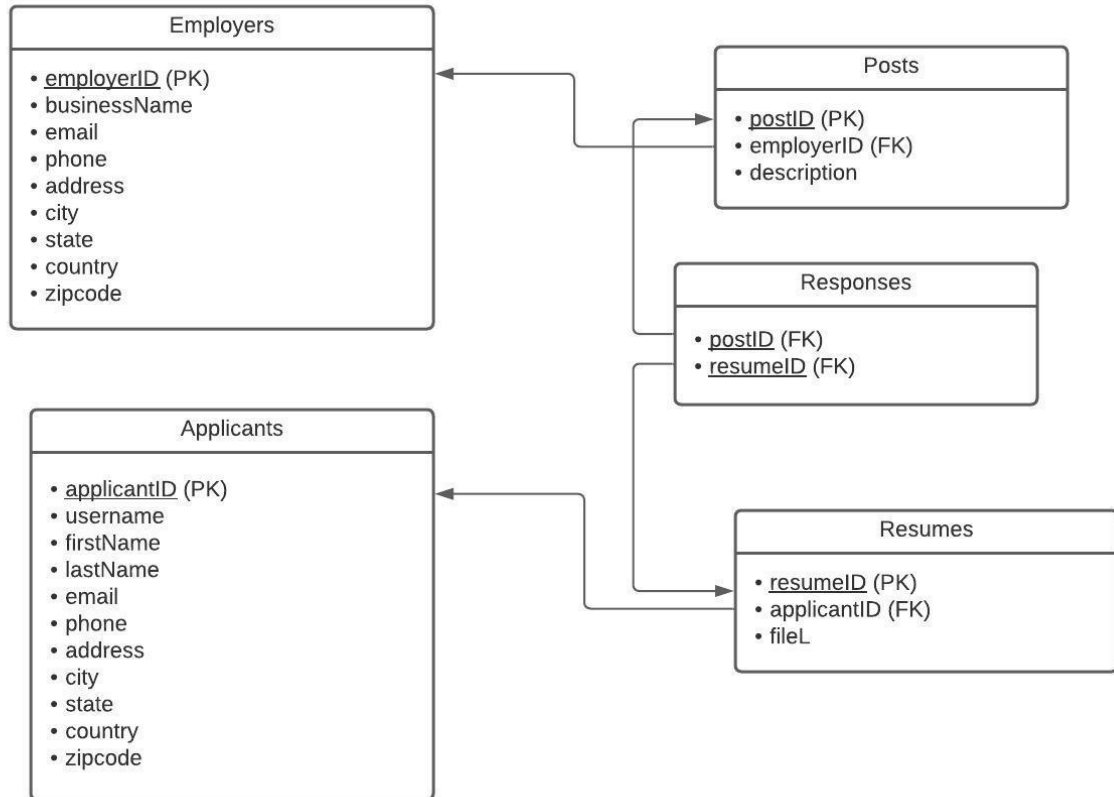


#### d) Schema:

Schema:

Job Board Database Project

Members: Christopher Eckerson & Kenny Seng



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**CS 340 TEAM EVALUATION form**  
**January 26th, 2021**

**RATE YOUR TEAM'S PERFORMANCE USING THE SCALE BELOW.**

**1 = Strongly Disagree 2 = Disagree 3 = Agree 4 = Strongly Agree**

<b>GROUP NUMBER</b>	123	
<b>NAME OF GROUP TEAM MEMBERS</b>	Chris Eckerson, Kenney Seng	
<b>SCALE AND COMMENTS</b>	<b>RATING</b>	<b>ADDITIONAL COMMENTS</b>
<b>HOW PREPARED WAS YOUR TEAM?</b> <b>Research, reading, and assignment complete</b>	4	For all design parts, group members knew what was expected and had done research on how the design should be.
<b>HOW RESPONSIVE &amp; COMMUNICATIVE WERE YOU BOTH AS A TEAM?</b> <b>Responded to requests and assignment modifications needed. Initiated and responded appropriately via email, Slack etc.</b>	4	Extremely responsive to communication and flexible to coordinating meeting times to work on assignments.
<b>DID BOTH GROUP MEMBERS PARTICIPATE EQUALLY</b> <b>Contributed best academic ability</b>	4	Team members split up skills, where one would lay down general outline features and the other would edit/clean/formalize/and check all components were present.
<b>DID YOU BOTH FOLLOW THE INITIAL TEAM CONTRACT?</b> <b>Were both team members both positive and productive?</b>	4	Chris - Yes, it seemed both of us understood the contract Kenny- Yes, we have a mutual understanding of the contract

**Are there any suggestions for improvement for your team and what are your goals moving forward?**

**(Better communication, follow the contract better, modify the initial team contract, more contribution, etc?)?**



Chris - So far I think we are doing a really good job being flexible with each other as well as maintaining strong communication between each other. Current communication choice works (discord).

Kenny - I agree! Chris and I have a strong flow of communication and are understanding of each other's schedules and flexibilities. No suggestions at the moment as everything is running smoothly!