BRITE REU Applicant Evaluation Database Project Proposal

Marissa Chiaradio, Kenzie Knox, Janvee Patel, Divya Sundaresan

ENG BF 768 Spring 2021

1. Name of project

BRITE REU Applicant Evaluation Database

2. Names of members of group working on project

Marissa Chiaradio, Kenzie Knox, Janvee Patel, Divya Sundaresan

3. Name of professor or other person supervising this work and contact information (phone, email, department)

Gary Benson
617-358-2965
gbenson@bu.edu
Biology & Computer Science

4. Brief description of project (250 word max). Include the principle aims of your project.

The BRITE REU Applicant Evaluation Database will hold information about the applicants applying the the BRITE REU Program. The website will act as a portal to the applicant information. This database will also allow uploads of reviewer evaluations of the applicants to help guide candidate selections. The applications will be available on the database as well as additional applicant information. Reviewers will be able to view this information and leave reviews and rankings on each application. Application ranks may also be left by faculty members who are considering applicants to work in their lab. The administrator of the database will be able to view all applicant information and all reviews up to date. The administrator will be able to use this information to select applicants as candidates for the BRITE REU Program.

5. Three examples of questions (broadly speaking) that will be answered by your database.

Our database will be able to answer several questions about the applicants. Some examples of questions include:

Which applications have not been reviewed yet?
Who are the top 10 applicants? (based on reviewer's rankings)
Which applications were submitted after a certain date?

6. Description of user accessibility (i.e., who can use it, who can't use it, will there be password protection).

The database will be password protected since it will hold private applicant information. Approved users will be able to login and depending on their assigned role will have different accessibilities. Dr. Benson will hold the administrative role, allowing him to have full access to the database. He will be able to view the user table and assign multiple roles to different users. As the administrator, Dr. Benson will also be able to mark applicant's as potential candidates and input/view candidate project rankings.

Users assigned as a reviewer will be able to view the applicant data table and download the application. From there reviewers will be able to upload a review of the application. Reviewers will have access to a review summary page where they can view their previous review uploads.

Another user role in the database will be the faculty. The faculty users will be able to review only the applications that Dr. Benson assigns to them. This will help the faculty determine if they would like these students to work in their lab. From there, faculty will be able rank candidates for their projects.

While creating the database, the data we are working with has been anonymized. This is due the fact that the applicant data holds private information including race/ethnicity, gender, addresses, etc. As we build the database structure we will continue to use sample data and spreadsheets to get the database functioning.

7. Description of data (what are the data objects, where do the data come from).

The applicants' data will come from a CSV file which can be inserted into the database through our python script. An additional application file will be available to be downloaded and will be a PDF file. Review data will come directly from users' interactions with the webpage. Reviewers will be able to submit their reviews through the webpage, which will be inserted into the database.

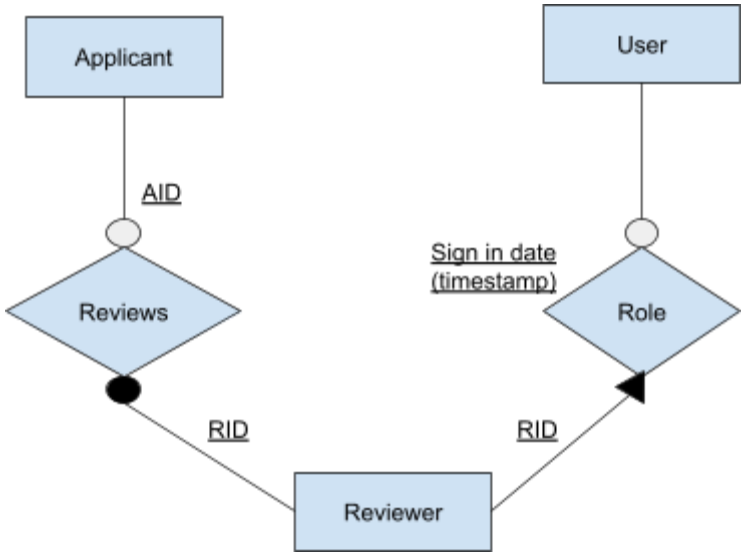
8. List of any special software that is not currently on bioed, but which you would like to use for the project (if your project will be on bioed).

Our project will be stored in the cgi-bin on bioed. We will be using SQLite to create the database through a python script. Python scripts incorporating html and javascript will also be found on bioed to view the database information through a web browser.

9. A specific list of tasks that you expect to accomplish.

- Ability to populate database in batches without duplication
- Logins for reviewers and faculty members
    - Assign applicants to reviewers and faculty
- Web interface for data review and application review/rating

10. ER model (diagram) including key and participation constraints.



11. Description of tables: What tables are used. For each table • Which fields are keys. • Which fields are foreign keys and to which other tables do they refer. • Which fields are indexed. What type of index.

The tables in this database include the Applicant table, User table, Review table, and Candidate table.

The Applicant table will have an aid, applicant ID integer, as the primary key. The User table will have an uid, user id integer, as the primary key. The Review table will have two primary keys, aid and uid. Both are foreign keys referencing the Applicant table and the User table. The Candidate table will have a primary key, aid, which is also a foreign key referencing the Applicant table.

Table	**Columns**
Applicant	ApplicantID INT (key) submit DATE Lname VARCHAR(30) Fname VARCHAR(20) email VARCHAR(30) state ENUM zip INT city VARCHAR(30) country VARCHAR(30) straddress VARCHAR(40) phone VARCHAR(14) dob DATE gender ENUM citizen/resident ENUM firstgen BOOLEAN vet BOOLEAN Race ENUM hispanic BOOLEAN

	pageurl VARCHAR(100) gradschool YEAR transcript VARCHAR(100)
Reviews	ApplicantID INT (foreign key, Applicant) uid INT (foreign key, Reviewer) score INT review VARCHAR(2000)
User	uid INT (key) Fname text, Lname text, Role text

12. Three sample SQL queries for common functions of the database.

Select all applicants who have not been reviewed yet:

```
SELECT *
FROM Applicant
WHERE reviewstatus is null;
```

Select all first-generation college students:

```
SELECT *
FROM Applicant
WHERE firstgen like “yes”;
```

Select all reviews completed by reviewer X:

```
SELECT *
FROM Review
WHERE uid = “X”;
```

13. Description of data processing, scheduled or performed by the user interface program, but which is external to the database (e.g. BLAST searches, statistical analysis, etc.) if any.

NA

14. List of other databases to which this database provides links.

The database will not provide any links to other outside databases. Our database will hold the applicant, reviewer, and candidate information. Links will be provided only to download the PDF document of the applicant’s full application, hosted most likely in a google drive folder with appropriate permissions.

15. Description of graphical output of the database. Include examples.

The main landing page will comprise of a view of the applicant rows, with the ability to toggle column views as well as to filter based on column contents. Each row will have two hyperlinks: one to the full application PDF to download or view, and the other to a review submission page for the selected applicant. Users with an “admin” role will also be able to view pages to view and change user information for faculty and reviewers.

16. Description of the data download function of the database (i.e., what data comes out and in what format).

Downloadable data from the database will include a document of the applicant’s full application. This will be stored in a PDF format.