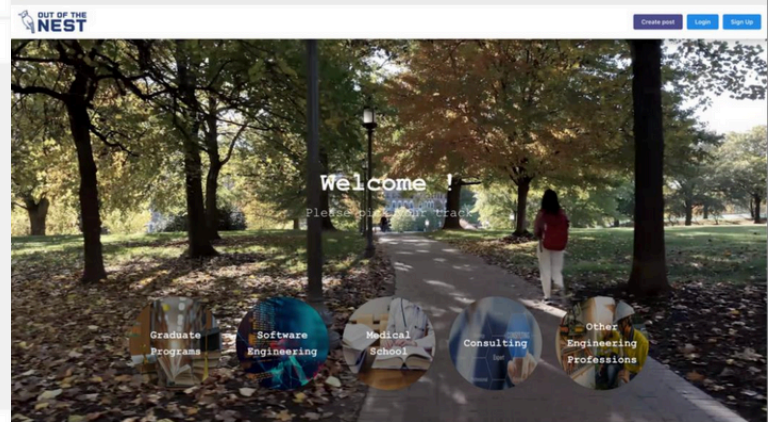
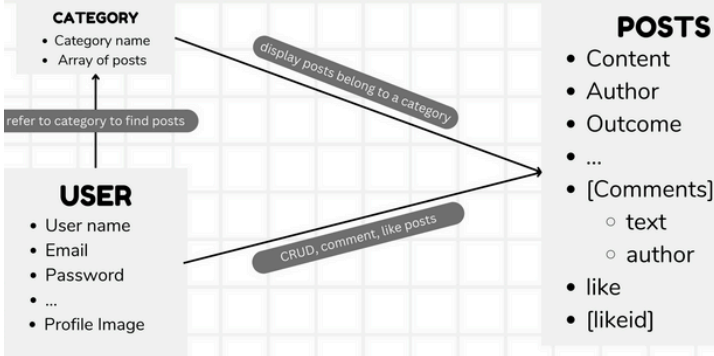


STUDENT HELP FORUM APPLICATION - JHU SWE PROJECT

ENTITY RELATIONSHIP DIAGRAM



What?

- Designed different object relationships and fields for **front-end and back-end components**
- Developed **CI/CD** pipelines with automated testing

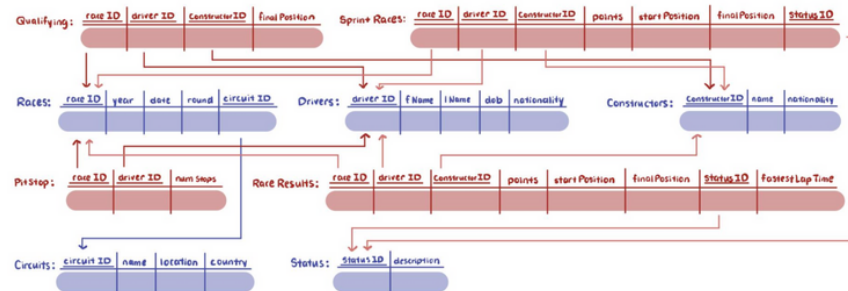
How?

- Worked with **GitHub** and deployment with Vercel
- Used **entity relationship and UML diagrams** to plan ahead before programming

Results

- Achieved **80% test coverage** using **Jest**
- Developed **full-stack** web application using the **MERN-stack** to enable real time Q&A for student collaboration

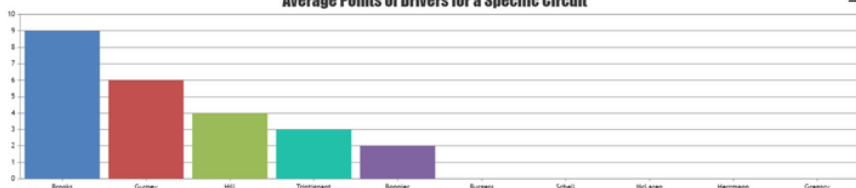
FORMULA ONE DATABASE INQUIRY - JHU DATABASES PROJECT



```
CREATE OR REPLACE VIEW AccidentsView AS
SELECT A.name, A.location, A.accidents, COUNT(R.circuitID) AS numRaces
FROM (
  SELECT C.circuitID, C.name, C.location, COUNT(C.circuitID) AS accidents
  FROM Circuits AS C, Races AS R, RaceResults AS RR
  WHERE C.circuitID = R.circuitID AND
        R.raceID = RR.raceID AND
        (RR.statusID = 3 OR RR.statusID = 4)
  GROUP BY C.circuitID
) AS A, Races AS R
WHERE A.circuitID = R.circuitID
GROUP BY R.circuitID;
```

```
CREATE OR REPLACE VIEW RaceWinnersView AS
SELECT RR.raceID, RR.driverID, R.circuitID
FROM Races AS R, RaceResults AS RR
WHERE R.raceID = RR.raceID AND
      RR.finalPosition = 1;
```

Average Points of Drivers for a Specific Circuit



What?

- Structured a relational model with **8 primary keys** and **13 foreign keys** to efficiently query results
- Created visual representations in tables and graphs for query results

How?

- Used **SQL and PHP** to show query results in tables and graphs
- Refactored complex JOIN statements and minimized nested subqueries

Results

- Improved **retrieval speed by 50%** for **40,000+ records**
- Allowed users to visualize query results for **20+ interactive tables and charts**

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XSS EMAIL SCANNER CHROME EXTENSION - JHU WEB SECURITY PROJECT



What?

- Developed a **Chrome extension** to detect XSS threats in emails

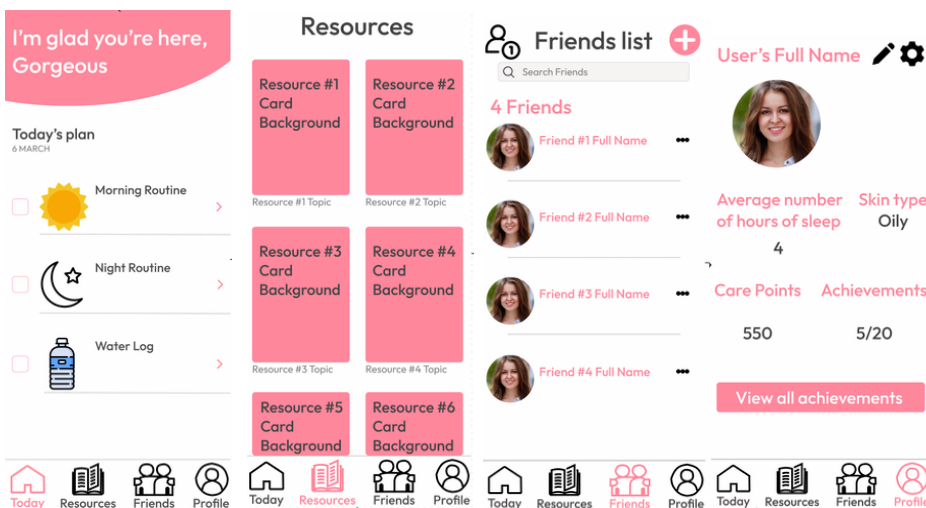
How?

- Used a **6,000-entry XSS payload** database to detect malicious links
- Coded in **JavaScript, HTML, and CSS**

Results

- Warns user of potential malicious links when opening emails

SKINCARE MOBILE APPLICATION - JHU MOBILE APPLICATIONS PROJECT



What?

- Used **Java and Firebase** to develop a skincare mobile app for users to create healthy habits

How?

- Implemented **cloud computing solutions for secure data storage** and user authentication
- Designed app layout and color schema using **Figma with 30+ pages**

Results

- Created a **Java** based mobile app with an intuitive layout and securely stores user data through **Firebase**

ROBLOX SIMULATOR GAME - OFF SHIFT STUDIOS



What?

- Developed and optimized core gameplay mechanics for a Roblox simulator game
- Created 3D models with low polygon counts for performance optimization

How?

- Used **Lua** and Roblox DataStore to program key gameplay mechanics
- Designed 3D models using **Blender**

Results

- Created a community of **40+ active players and 500+ times played**
- Programmed Lua scripts to create a quest and obstacle course system
- Improved **game responsiveness and loading speed by 20%**