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CSC 415-01
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Assignment 2 - Open Source Software: Proposal and Specifications

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GitHub:

- repository: Creeport
- full pathname: https://github.com/medinah2/Creeport/

• The social issue you are attempting to address.
I am attempting to address sexual assault/harassment issues on campus. In developing this application, it would provide a user-friendly and less intimidating way for students to report these types of incidents via a web application. In keeping track of how many different reports are filed against the same individual students can be notified to know that they are not alone and that there are other students who may be harassed by the same individual which will hopefully lead to an increase in official reports through Title IX and maintain a list of students who may pose to be a threat to other students on campus.

• The project name: Creeport

• Whether you chose Option 1 or 2 with a rationale, i.e. why you chose this option.
I chose Option 2 because I was not particularly knowledgeable about the open source projects given in Option 1 and I wanted to work on a new project rather than one that has already been implemented as I would not need to spend time learning the coding styles and concepts of the previous collaborators. I felt as if in selecting option 2 I would be able to focus on a social issue that I am more passionate about and feel as if I am using computer science to make a difference.

• Whether you will implement a web-based or mobile application. Also, specify the language(s), framework(s) and platform as appropriate.
I will implement a web-based application because it will be easier for Title IX members to access and individuals filing a report will not want to download a mobile application if they are only submitting a single/select amount of incidents. I will use Ruby and Ruby on Rails with PostgreSQL as a database to maintain the list of students reported. This will be hosted and executable on my virtual machine assigned on the TCNJ HPC cluster.

• The project idea in one descriptive sentence.
My project aims to provide a resource for students to safely and anonymously report incidents of abuse and assault as a tool for Title IX members to access through a web application.

• Discussion of why your project is innovative and interesting, and how it will help address the social issue.
The aim of this project is to allow students on campus to have a more convenient way to report incidents of sexual assault or harassment that may have occurred on campus. While Title IX is an incredibly useful resource on campus within itself, reporting an incident can feel incredibly intimidating and isolating as a

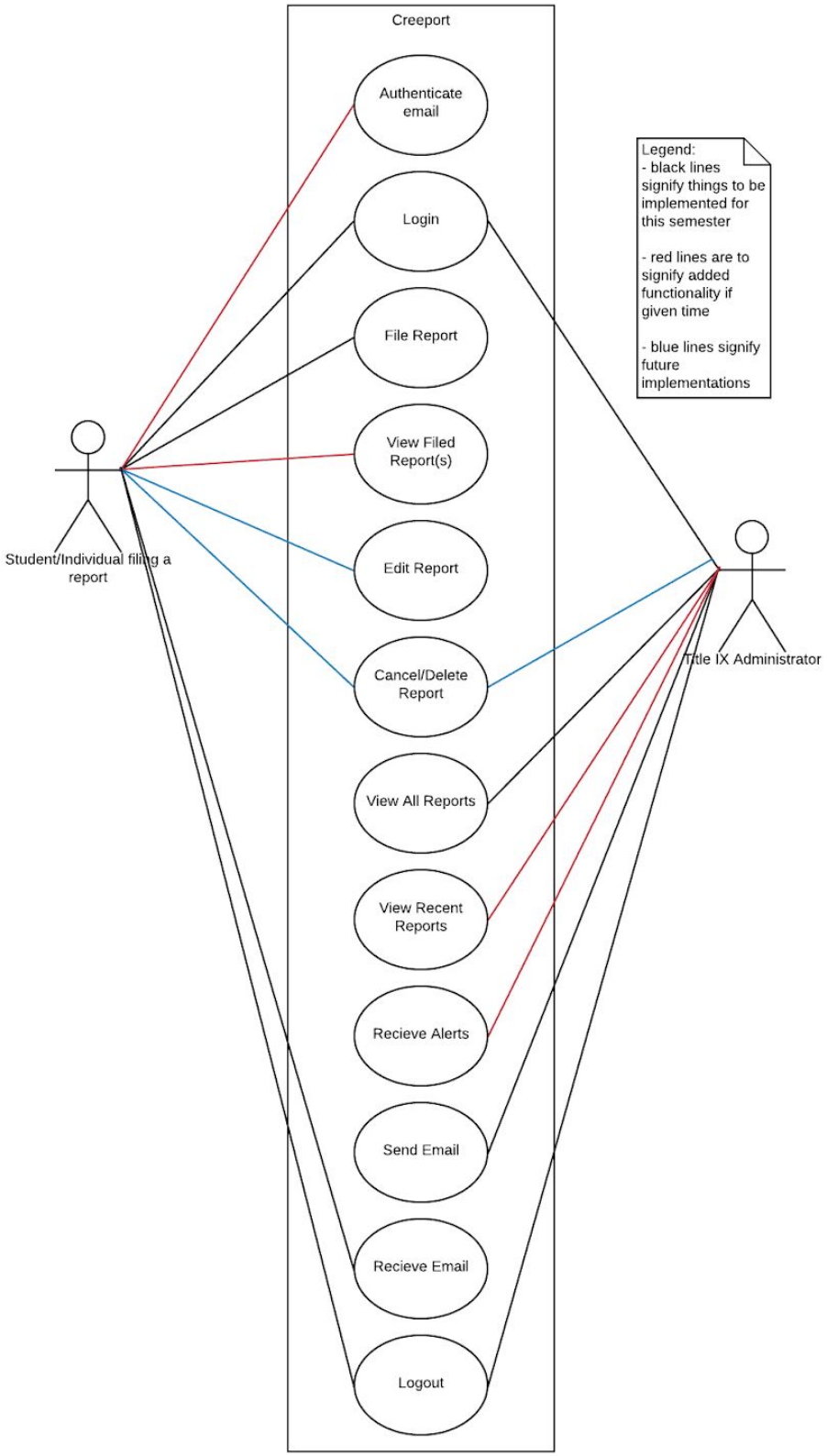
majority of the options are severe and involve lengthy processes. I am aware of other students who have failed to file an official report to Title IX as a result of this, and many cases of sexual harassment will remain unnoted. My main goal is to increase more reports that may otherwise never be brought to light to Title IX members. A we application proves to be a non-threatening application where students can maintain anonymity, while still being able to report an incident. If multiple students have reported the same individual, each student will be notified through the email provided and alert the student that other students have also reported the same individual. If students are aware of this, they will get the sense that they are not alone, and may feel more comfortable filing an official report.

• The algorithm(s) you will implement, with rationale for your choice.
I am planning on implementing bubble up/heapify up when creating a priority queue because essentially a priority queue functions as a binary search tree. When adding new elements you will need to rebalance the list to ensure that it is ordered based on severity of reports. I could also use a sorting/ranking algorithm to sort the elements in the queue such as a binary sort as the values will be entered in order so the time complexity will work well to reorder a new element within the list.

• The data structure(s) you will use, with rationale for your choice.
I will use a hash map to keep track of the student that has been reported because all reports against a single individual should remain linked to them. Each element in the hash map will be stored in a priority queue, as the categories reported will be ranked through numerical values based on the categories on the Title IX report form (1. Sexual Harassment, 2. Sexual Assault, 3. Stalking, 4. Dating or Domestic Violence, 5. Invasion of Privacy/Sexual Exploitation, 6. Gender Discrimination, 7. Other/Unknown [https://tcnj-advocate.symplicity.com/titleix_report/index.php/pid217564?])
I will also need to store user information to allow them to log in and have it linked to an email. This can also be implemented through a hash as there should only be one user for one email, no two accounts should have the same email.

• New software engineering concepts you expect to learn or reinforce.
I expect to reinforce my knowledge and use of UML diagrams in order to visually plan out this application. I also will need to learn about good user interface practices, and how to implement/design a friendly and easy to use platform that will aid in increased reports. Aside from the design process, I will also need to learn to maintain a healthy pace of project management, in order to ensure that I am meeting deadlines and staying on track.

• Use case diagram, in correct UML, that shows the major functionality of the system and primary actors. Clearly indicate the subset of the functionality you will implement for this semester, the additional functionality you will implement if there is time, and functionality that may be implemented in the future. If you chose Option 1, you only need to include the use case diagram for the specific functionality you are implementing. The rest of the system would be outside the system boundary.


Creeport
Authenticate email
Login
File Report
View Filed Report(s)
Edit Report
Cancel/Delete Report
View All Reports
View Recent Reports
Recieve Alerts
Send Email
Recieve Email
Logout
Legend:
- black lines signify things to be implemented for this semester
- red lines are to signify added functionality if given time
- blue lines signify future implementations
Student/Individual filing a report
Title IX Administrator

• A proposed timeline for completing the various tasks that includes time to better understand the domain, talk to stakeholders, and learn the language(s), platform(s) and other concepts you will use in this project. Also, include a listing of the resources you will use to learn the languages etc.

Proposed Timeline:

- Week 5
    - **Key dates:**
        - **February 24th -> Written specifications**
        - **February 27th -> In-class pitch due**
    - Things to complete this week:
        - Get in contact with stakeholders to specify user requirements/ review concept design (Title IX members provided to me by Dr. Draper)
        - Design the User Interface for my application (more details in Assignment 3 doc for requirements)
        - Finalize in-class pitch for class on the 27th (Thursday)
        - Access guides.rubyonrails.org/getting_started.html and ruby-lang.org/en/documentation/quickstartup to begin to learn ruby on rails
- Week 6
    - Things to complete this week:
        - Complete the following UML diagrams: Use Case Descriptions, Detailed Class Diagram, System Sequence Diagram, and Statechart, and Test case diagram
            - These may need to be revised later before March 26th
        - Review diagrams/concepts with stakeholders (Title IX members) to ensure specifications are met
        - consider application UI and mobility using resouurces learned in class
- Week 7
    - Things to complete this week:
        - work on prototype #1 -> set up links and buttons
        - check-in with stakeholders (Title IX members)
        - Revise/Review UML diagrams
- Week 8 (spring break)
    - Things to complete this week:
        - work on prototype #1 -> should be implementing functionality, data structures, and algorithms
        - Write a written description of requirements met in regards to code
- Week 9
    - **Key Date:**
        - **March 26th -> OSS Analysis and Design**
    - Things to complete this week:
        - check-in with stakeholders (Title IX members)
        - further develop the prototype to add included functionality
- Week 10
    - Things to complete this week:
        - further develop the prototype to add included functionality

- Week 11
    - **Key Date:**
        - **April 6th - >Assignment 4: In-class presentation**
    - Things to complete this week:
        - further develop the prototype to add included functionality
        - Consider software quality
- Week 12
    - Things to complete this week:
        - further develop the prototype to add included functionality
        - make sure that the user interface is easy to understand and view
        - check-in with stakeholders (Title IX members)
        - consider security issues
- Week 13
    - **Key Date:**
        - **April 20th -> Assignment 4: Peer Reviews due**
    - Things to complete this week:
        - improve/revise my project based on peer review feedback
        - review security issues
- Week 14
    - **Key Date:**
        - **April 27th -> Assignment 5 Individual Project Code Reviews & User Testing in class**
    - Things to complete this week:
        - revise project based on user testing/code reviews (maintenance reengineering)
        - discuss the final stage of the project with stakeholders (Title IX members)

Resources:

- https://guides.rubyonrails.org/getting_started.html (Ruby on Rails)
- http://ruby-lang.org/en/documentation/quickstart/ (Ruby on Rails)
- https://www.ruby-lang.org/en/documentation/ (Ruby)
- https://www.rubydoc.info/ (Ruby)
- https://www.postgresql.org/docs/ (PostgreSQL)
- https://www.lucidchart.com/ (UML documents)
- https://titleix.tcnj.edu/ (Title IX policies)