Sprint 1 Demo

Building Cyber Infrastructure for Researchers

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Team Members:

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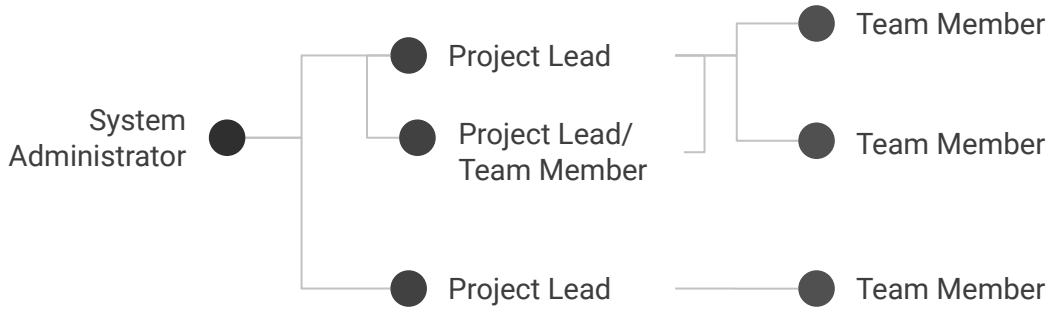
Visions & Goals

Vision: Develop cloud based infrastructure that runs code over specified data sets to create and compare ecological forecast models

Goals:

- Provide web service with simple user experience
- Develop Infrastructure on cloud using VM or Containers to run code and balance workload
- Provide user interface that allows for comparisons between multiple models

Users & Personas Administrator



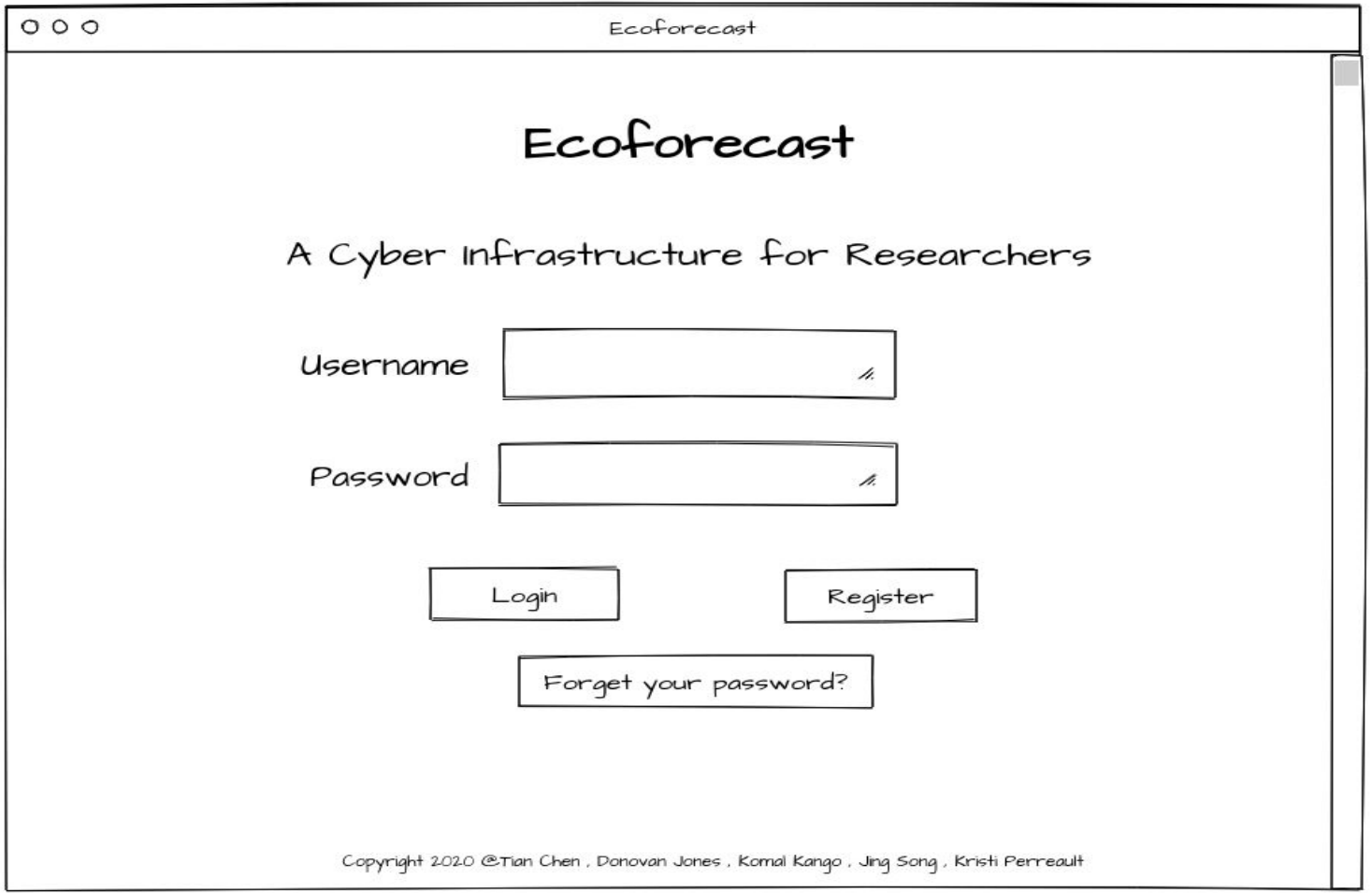
System Targets:

- End-users, specifically ecological researchers in the BU Department of Earth & Environment

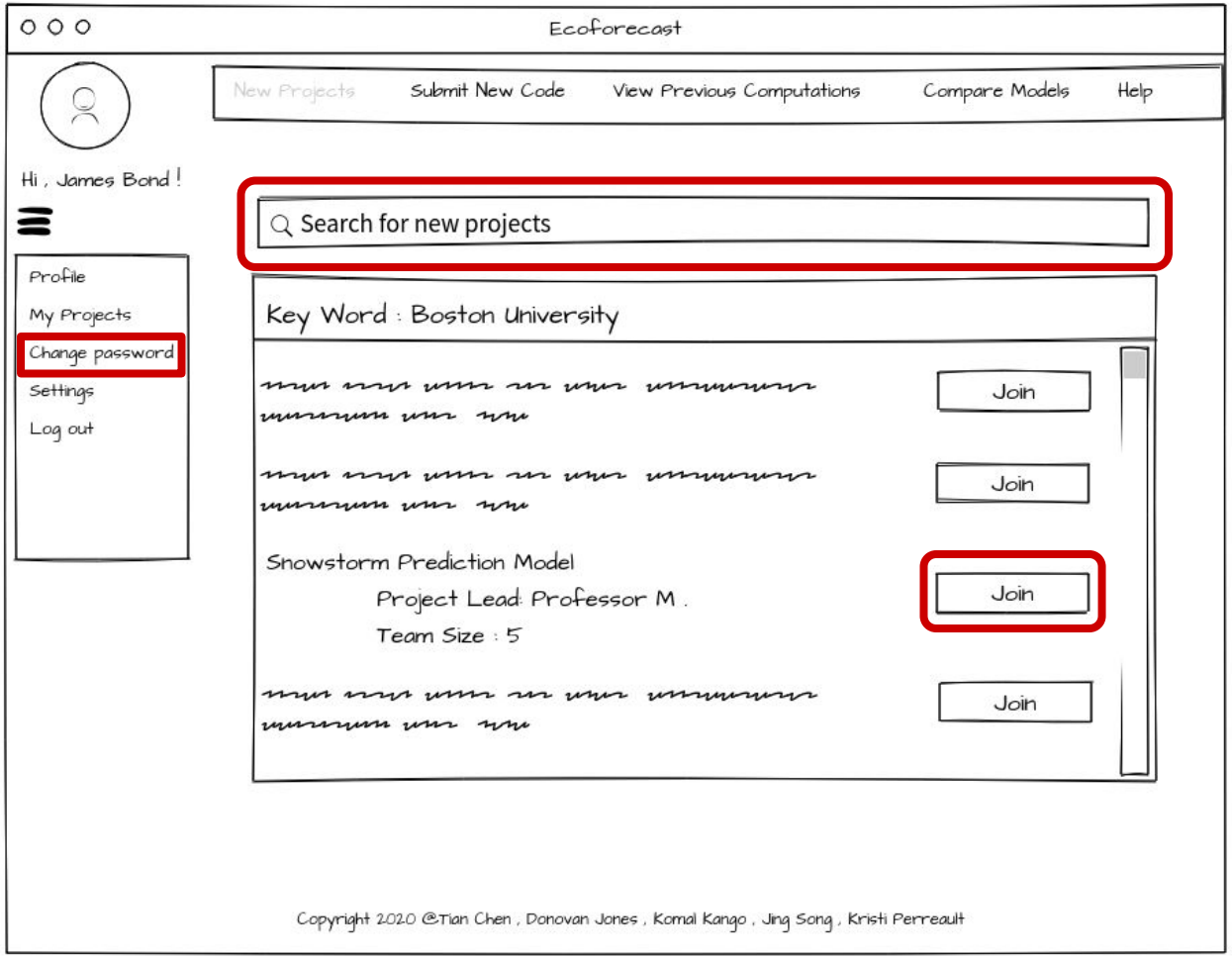
Does Not Target:

- Non-ecological researchers
- Advanced users with complex requirements beyond of the scope of the project.

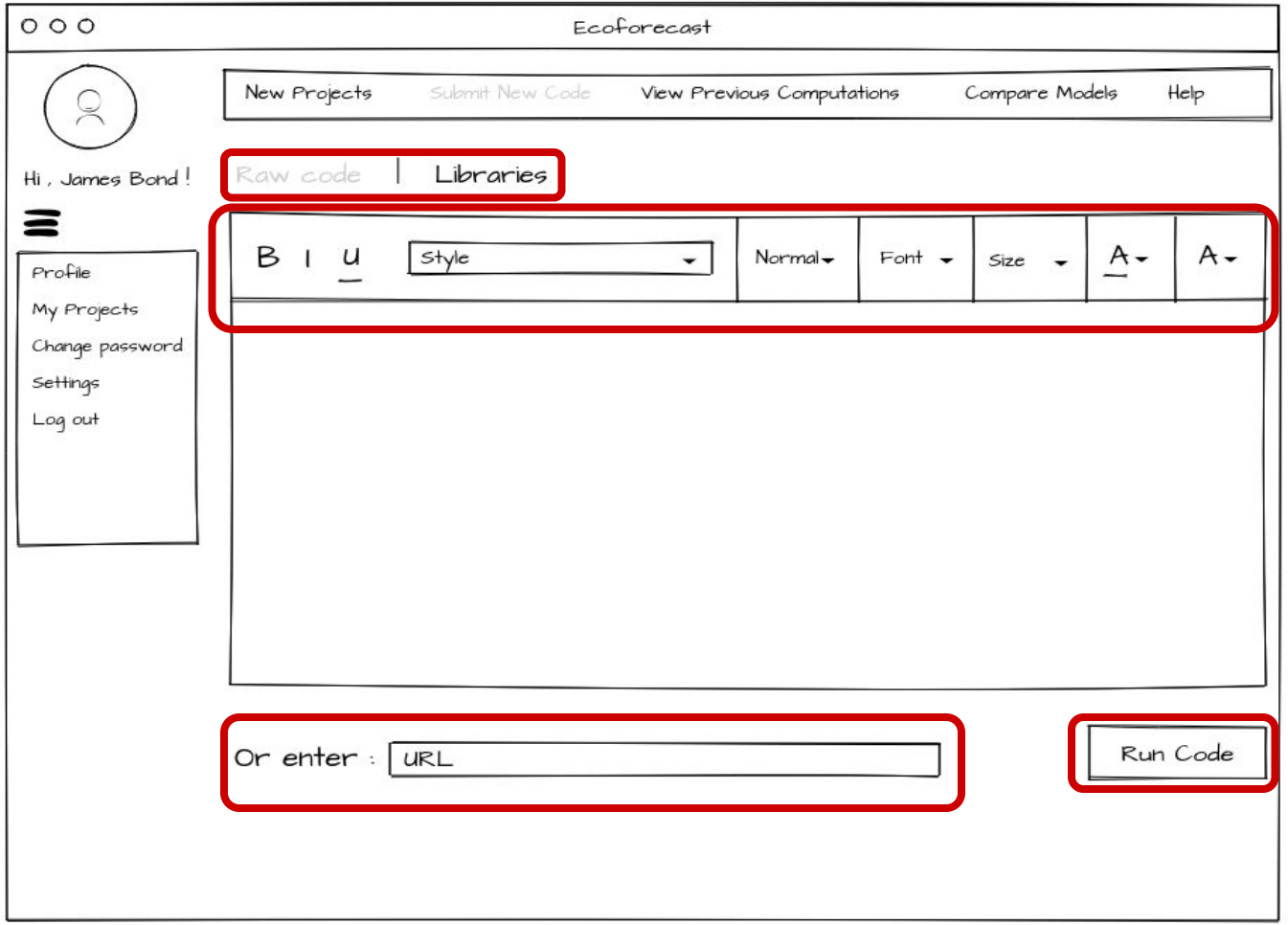
Scope & Features - UI - Homepage



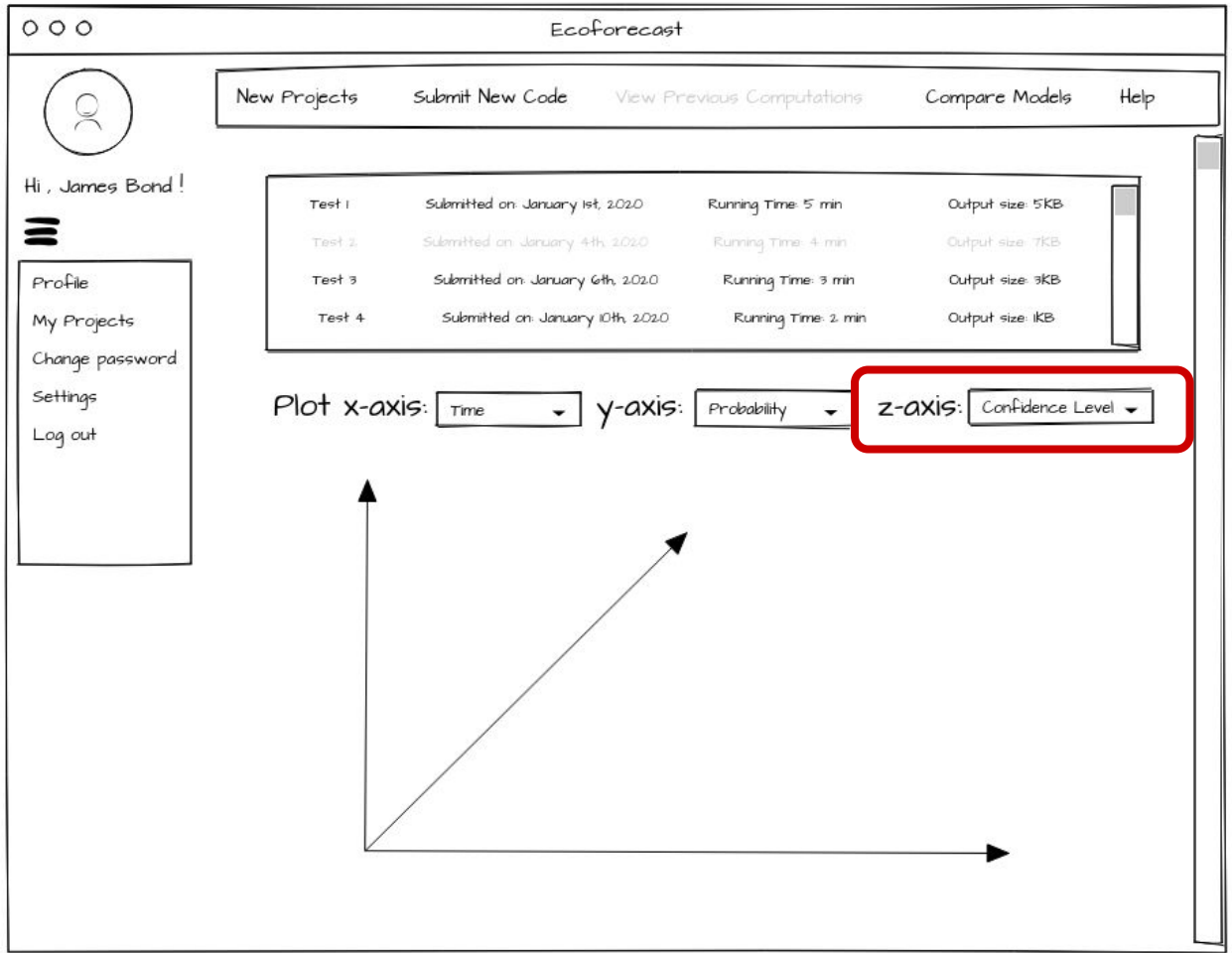
UI - Team Members : Join New Projects



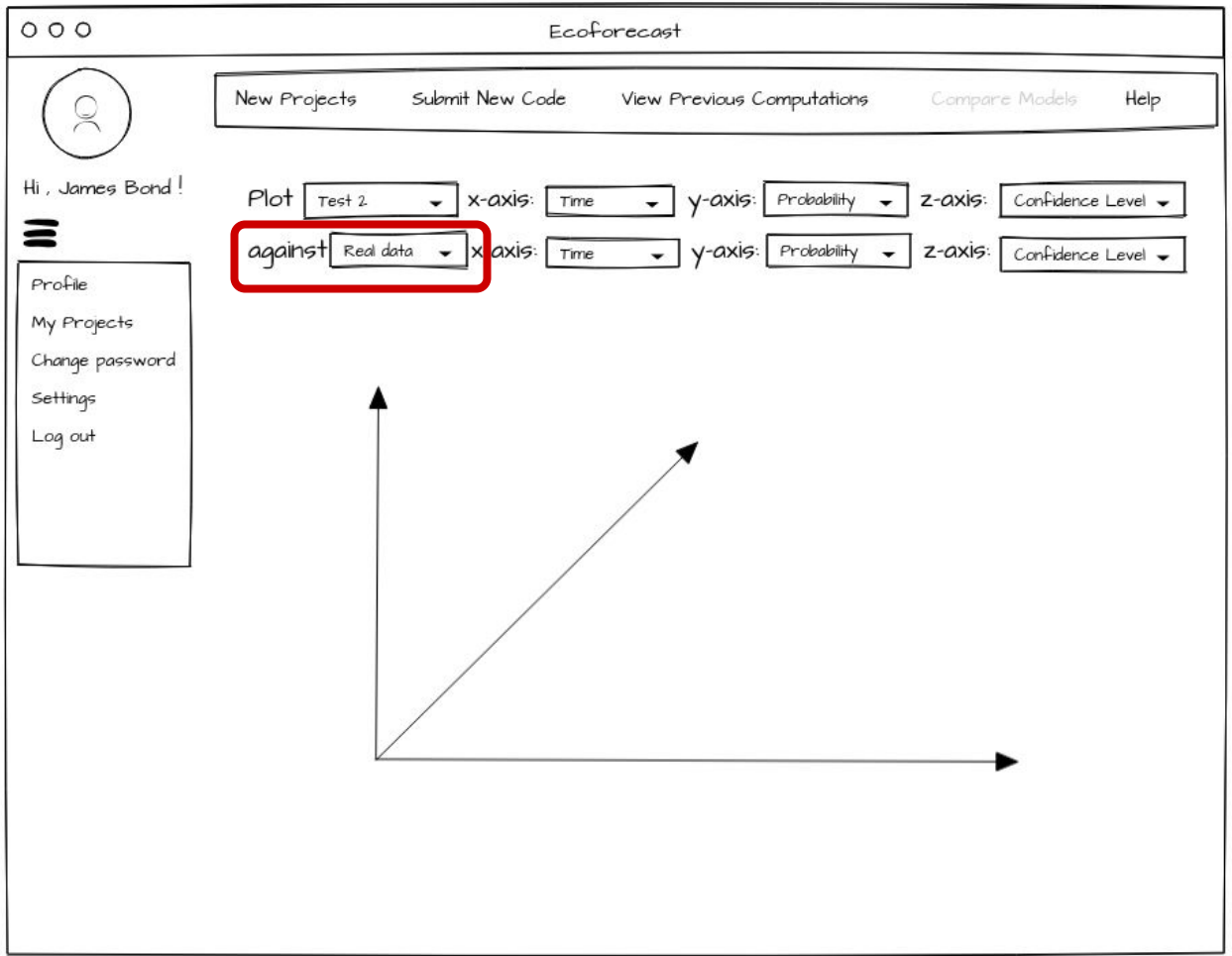
UI - Team Members : Submit New Code



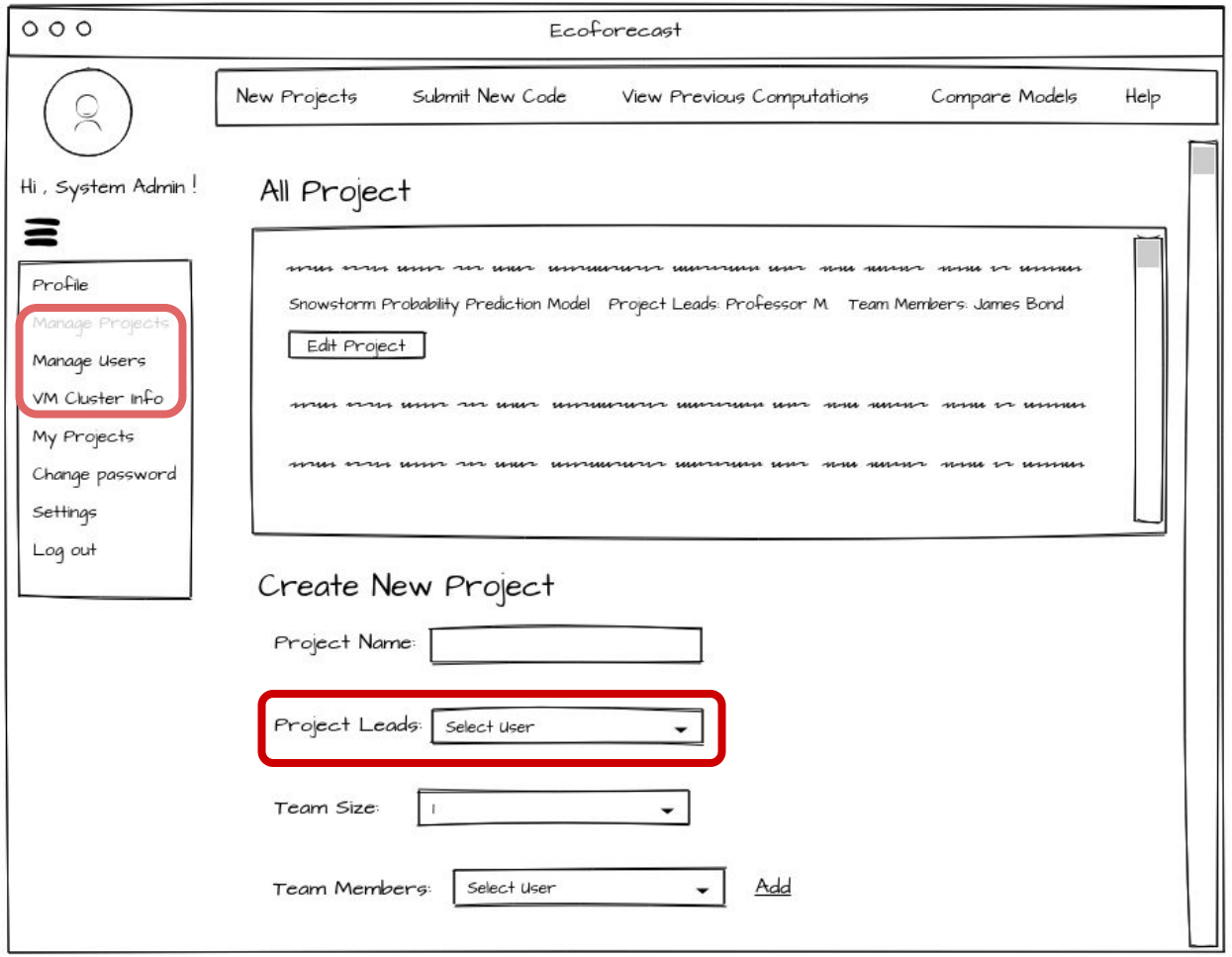
UI - Team Members : View Previous Computations



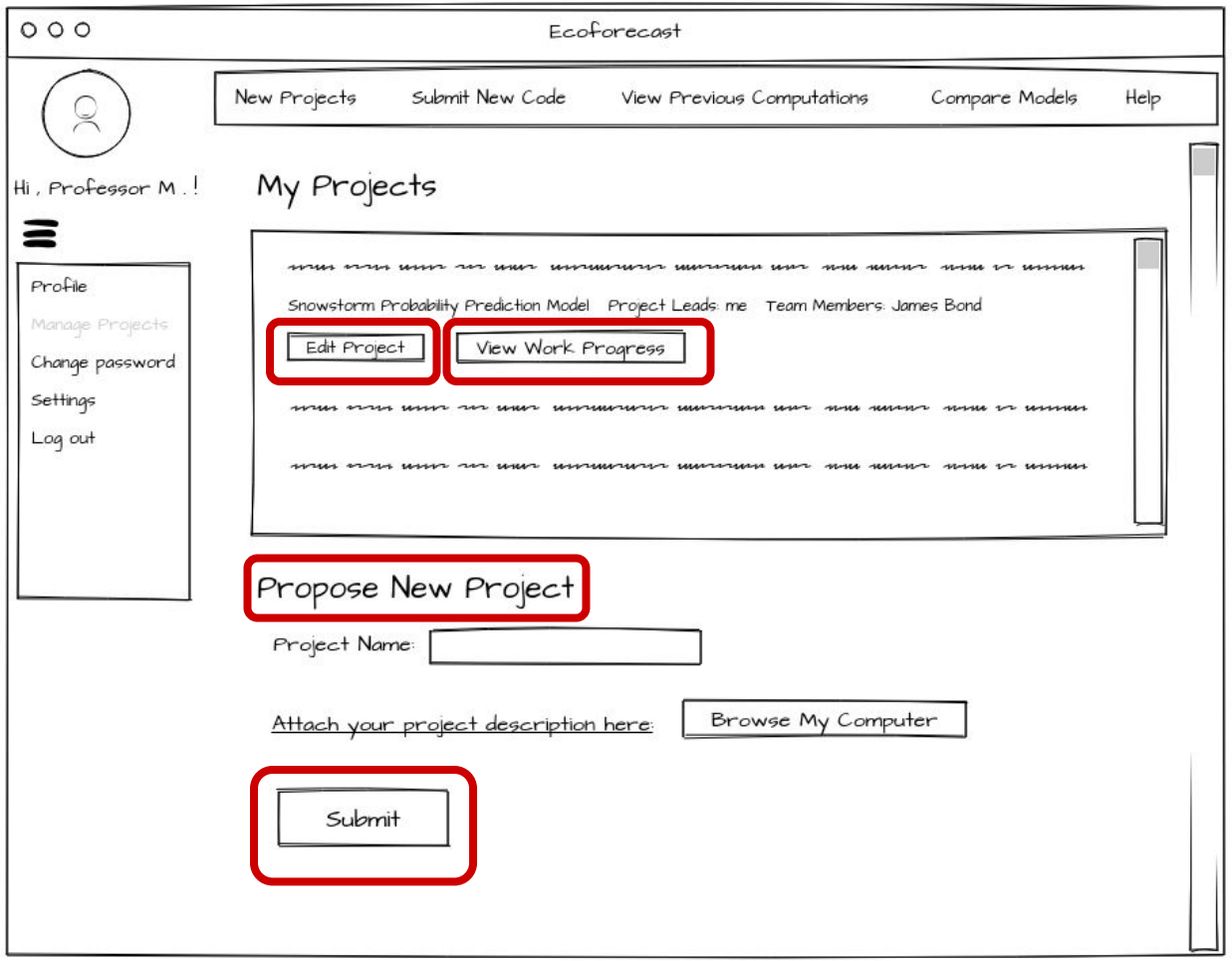
UI - Team Members : Compare Models



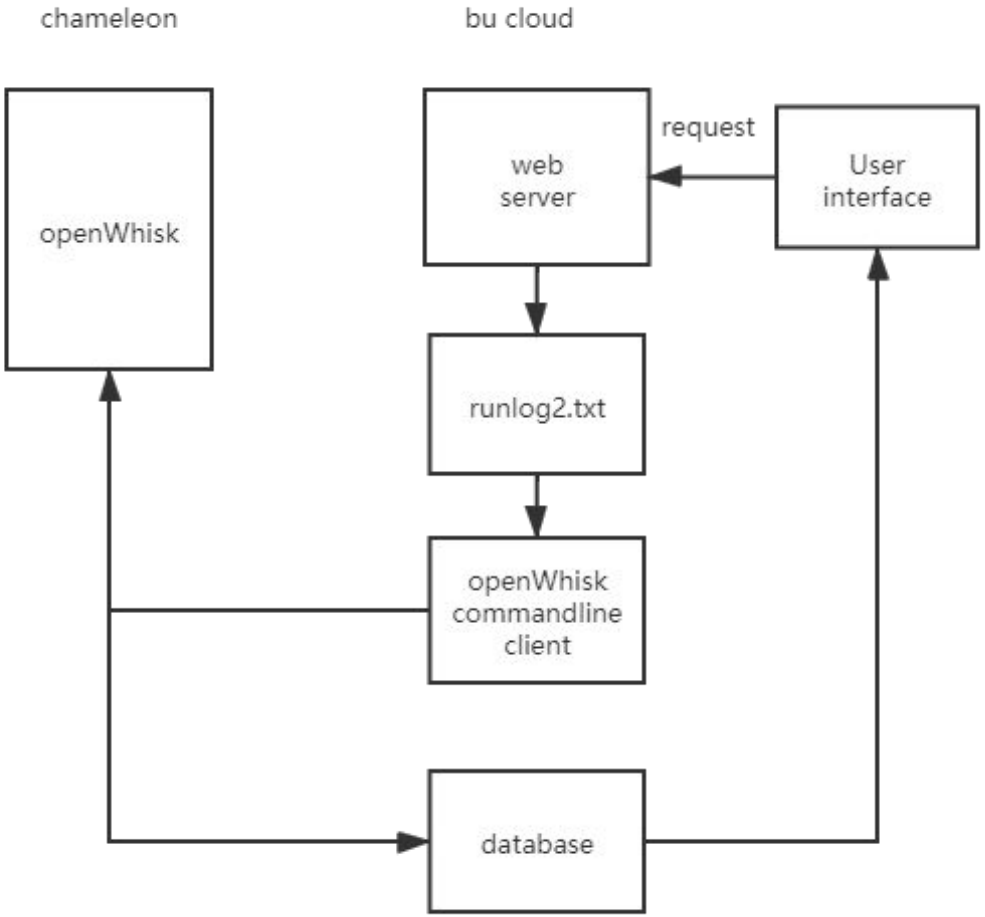
UI - System Administrator



UI - Project Leads



Scope & Features - O&S, VM and database



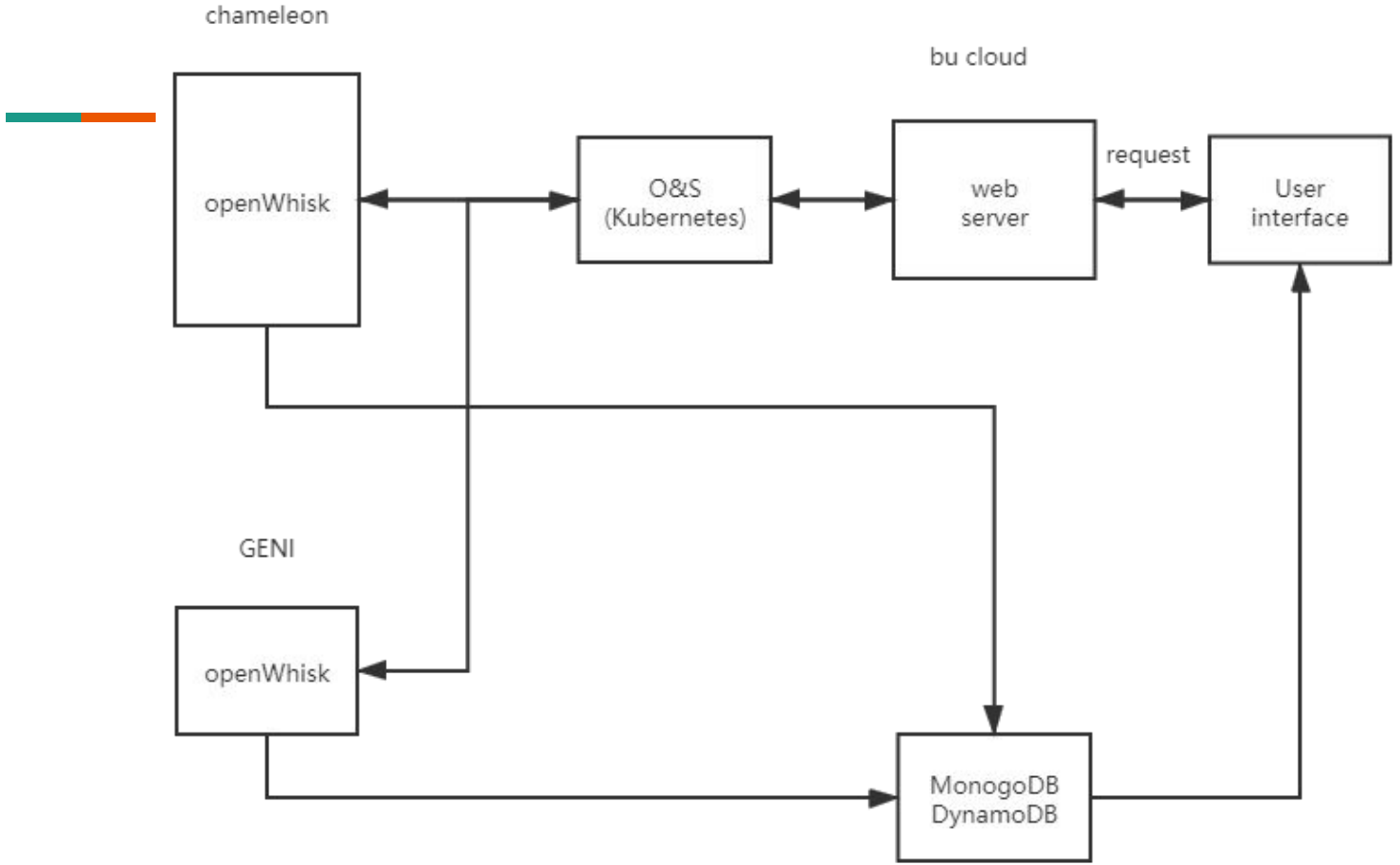
Scope & Features - O&S, VM and database

The new system will have two cloud servers: GENI and Chameleon

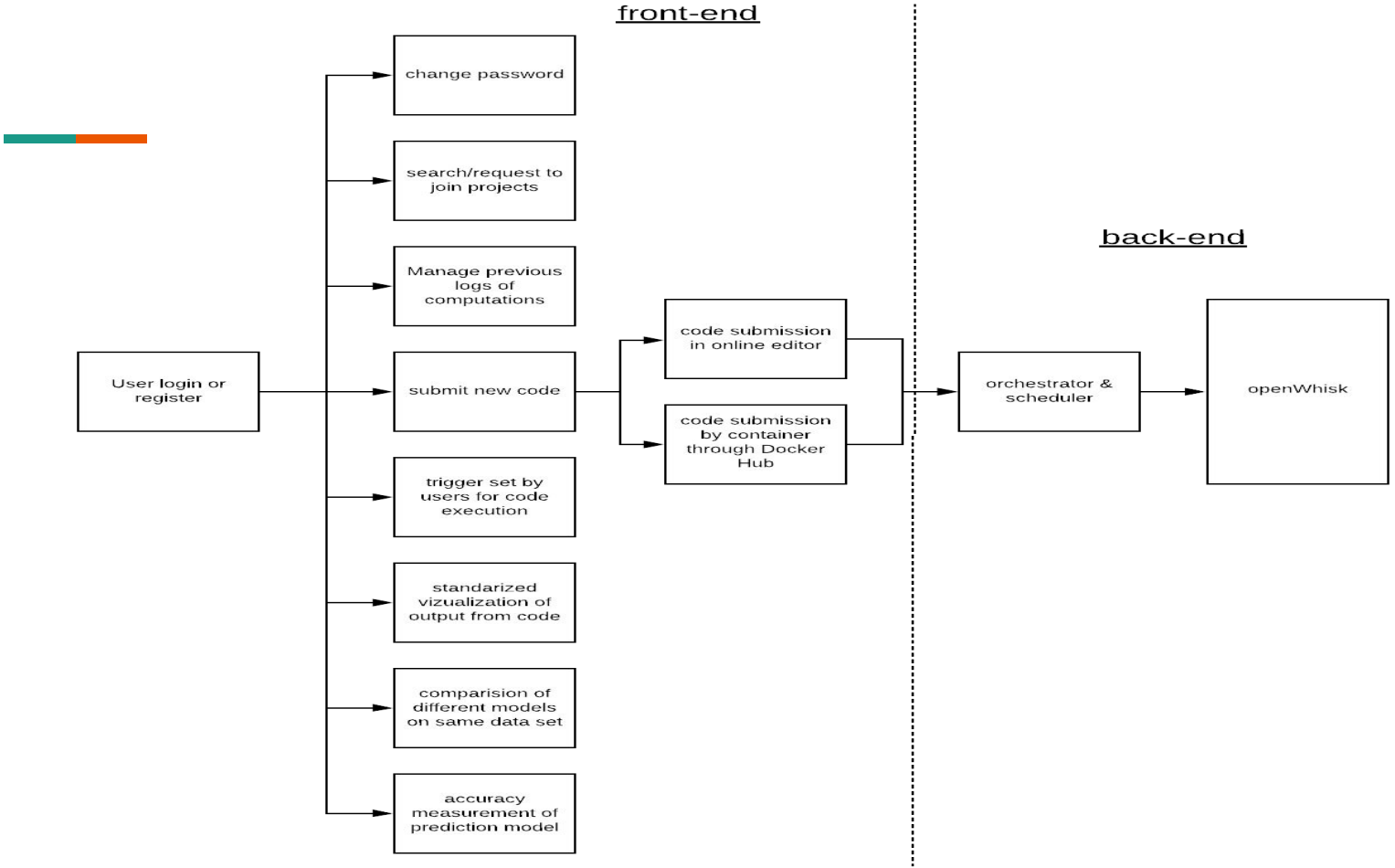
O&S:

1. Install code dependencies
2. Find the best cloud platform to run the code
3. Determine the best configuration of running the code
4. Build on Kubernetes

Scope & Features - O&S, VM and database



Solution Concept



Acceptance Criteria

The minimum acceptance criteria is a single-running process which the code submitted by the user is taken by Openwhisk and distributed by O&S to run across different cloud serverless platforms and the output of computation is shown to the user on UI. Stretch goals are:

- More visualization functionality for showing the computation output
- Parallel Code Execution

Release Planning

Release #1 (due week 2)

- Project goals determined and understood
- Front end framework determined
- Registered in the old system

Release #2 (due week 4)

- Submission portal
  - User can upload code in R in text box or file upload
  - Create DynamoDB to store data & results
- User registration/login
  - User able to register for an account with email
  - User data saved to MongoDB table, user able to login
- Admin system
  - Ability for admins to approve/deny registration requests
- VM environment
  - Install Openwhisk on a cluster (Kubernetes)

For full release plans, please visit the team's project space:
https://tree.taiga.io/project/mosayyebzadeh-building-cyber-infrastructure-for-researchers/timeline