

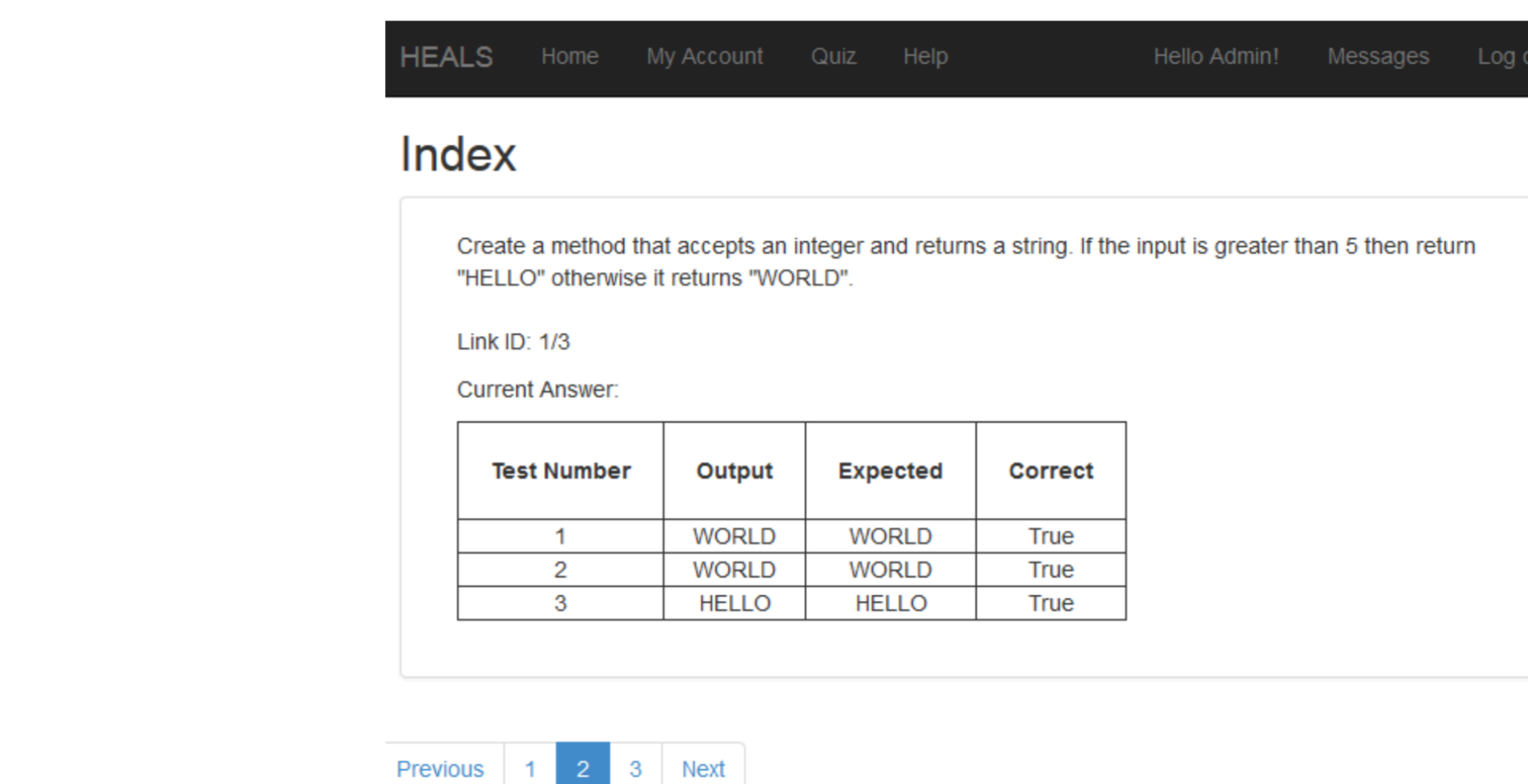
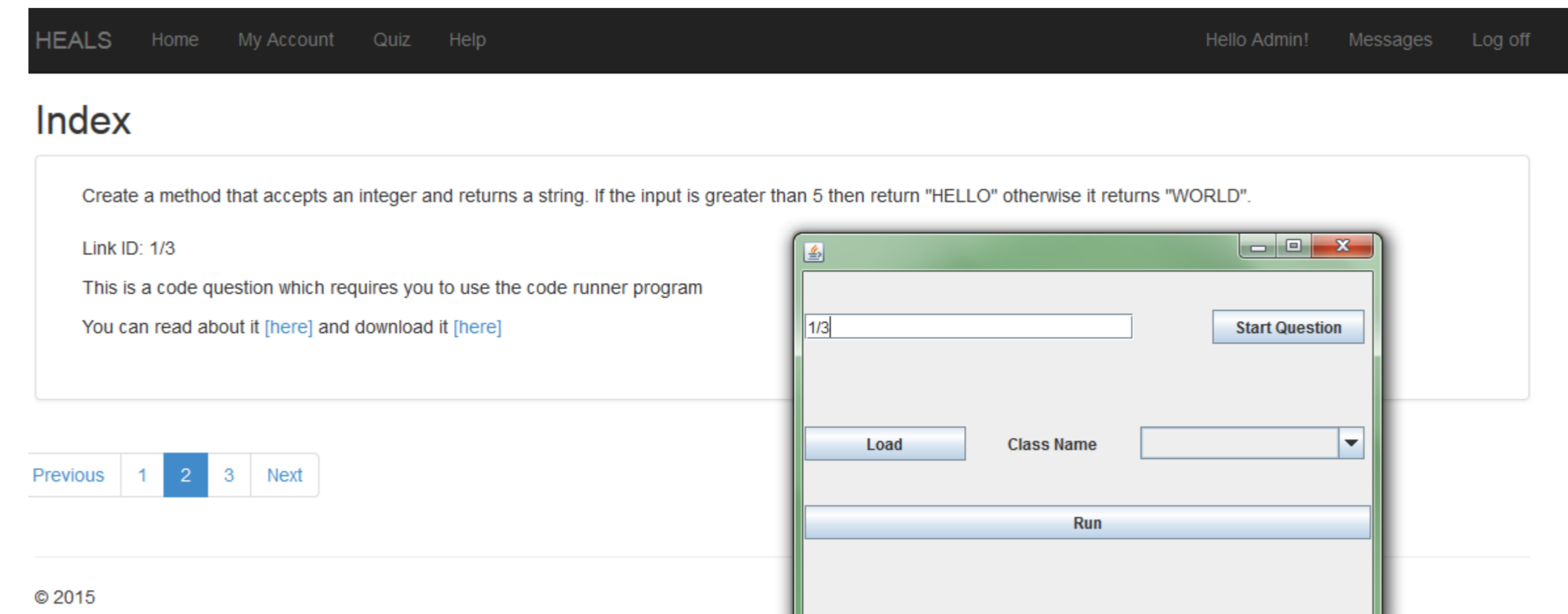
Creating an adaptive tool to automate marking and personalise learning

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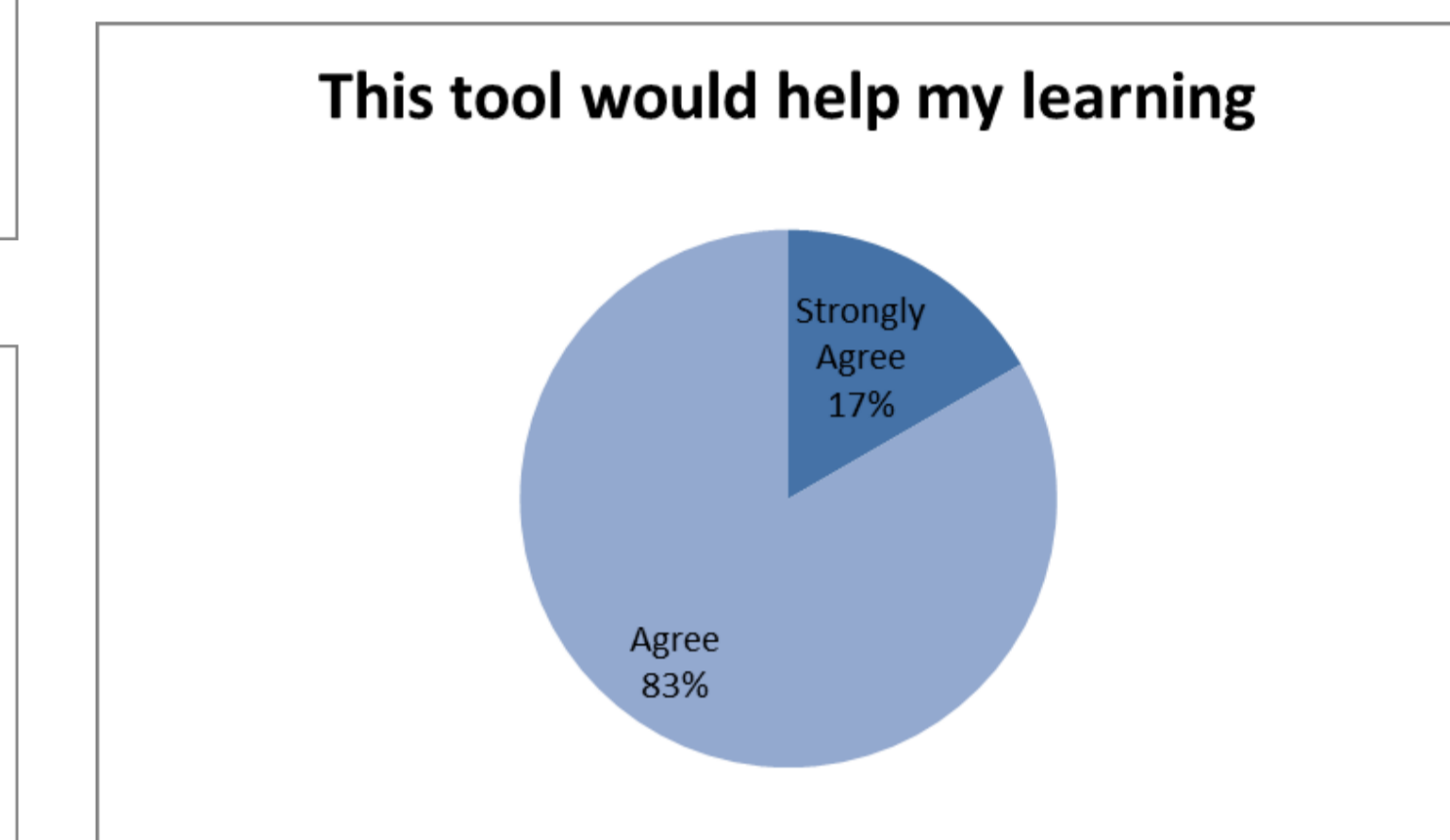
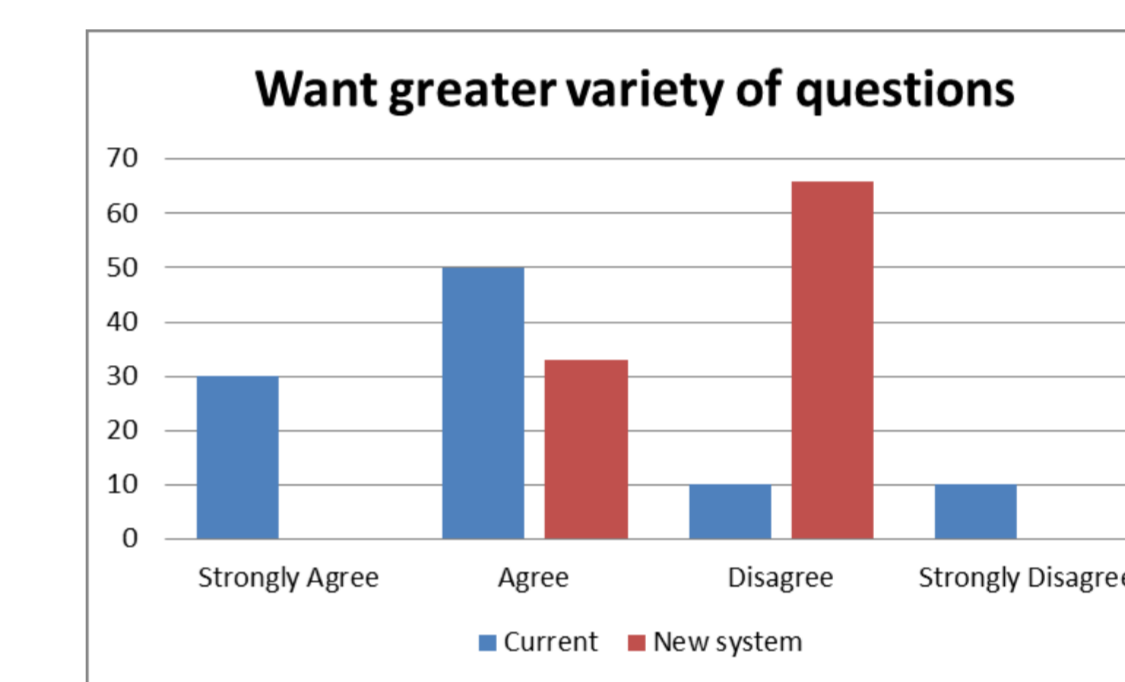
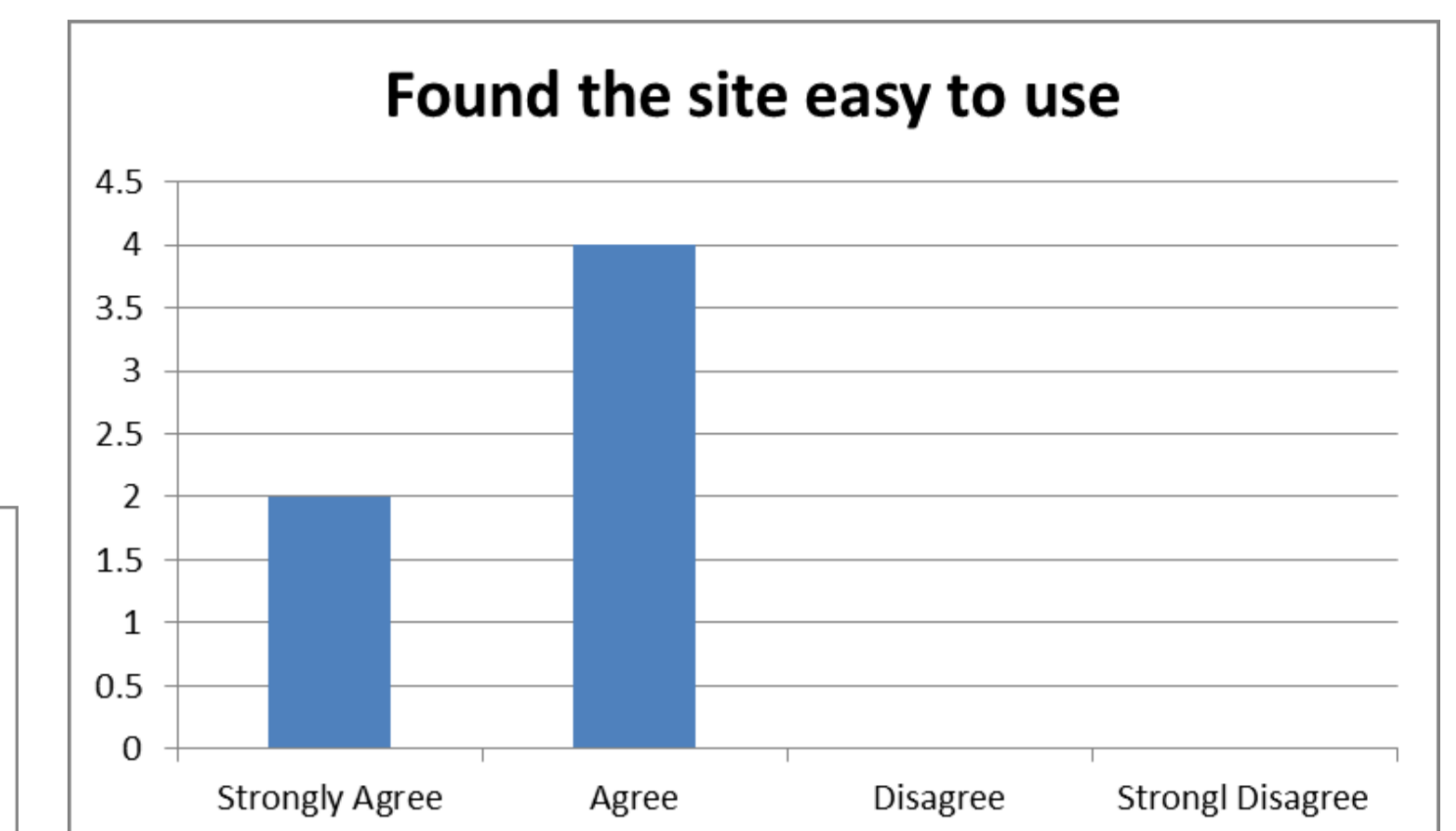
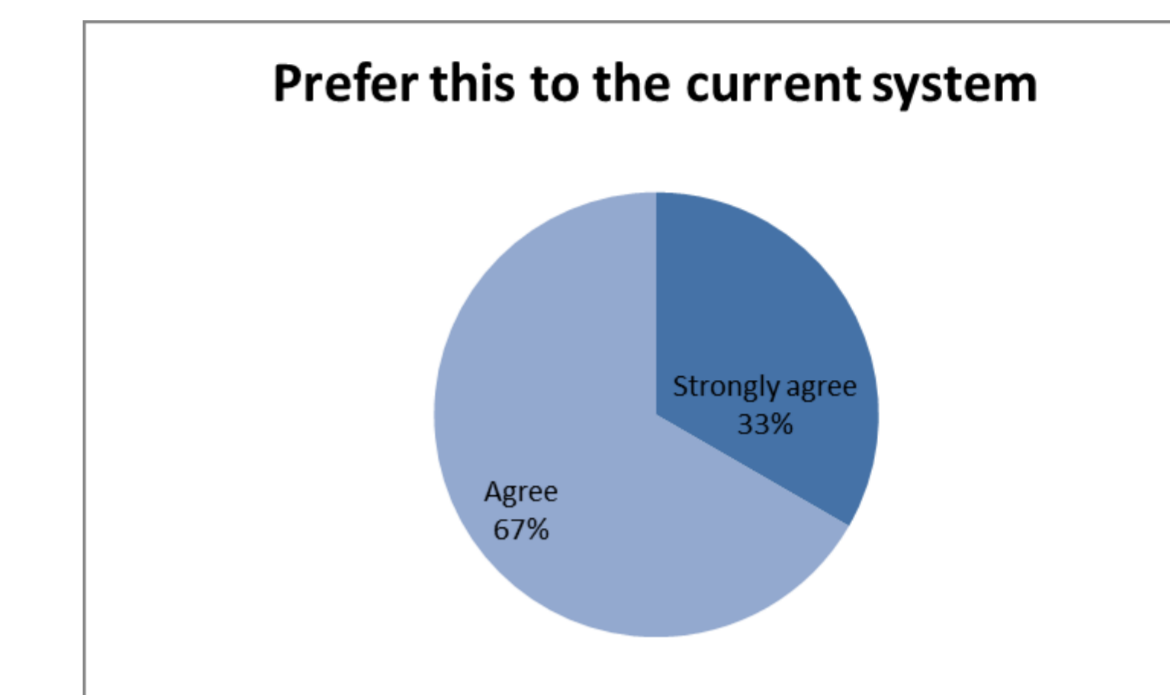
Problem

This project investigates and attempts to solve several issues in the software engineering 1 module, including:

- Marking assessments is very slow and repetitive, as code can be written in a multitude of different ways but still perform fundamentally the same.
- Weekly class room exercises are static documents which mean users do not receive any feedback to show if they are correct and users of all different abilities are given the same questions.
- The module tutor does not receive any data to view student progression.



Trial Results



13. Convert the following if-else-if statement into a switch statement:

```

if (choice == 1) {
    System.out.println("You selected 1.");
}
else if (choice == 2 || choice==3) {
    System.out.println("You selected 2 or 3.");
}
else if (choice == 4) {
    System.out.println("You selected 4.");
}
else {
    System.out.println("Select again please.");
}
    
```

Before

```

Answer:
Switch(choice)
{
    Case 1:
        System.out.println("You selected 1.");
        Break;
    Case 2:
        System.out.println("You selected 2 or 3.");
        Break;
    Case 4:
        System.out.println("You selected 4.");
        Break;
}
    
```

After

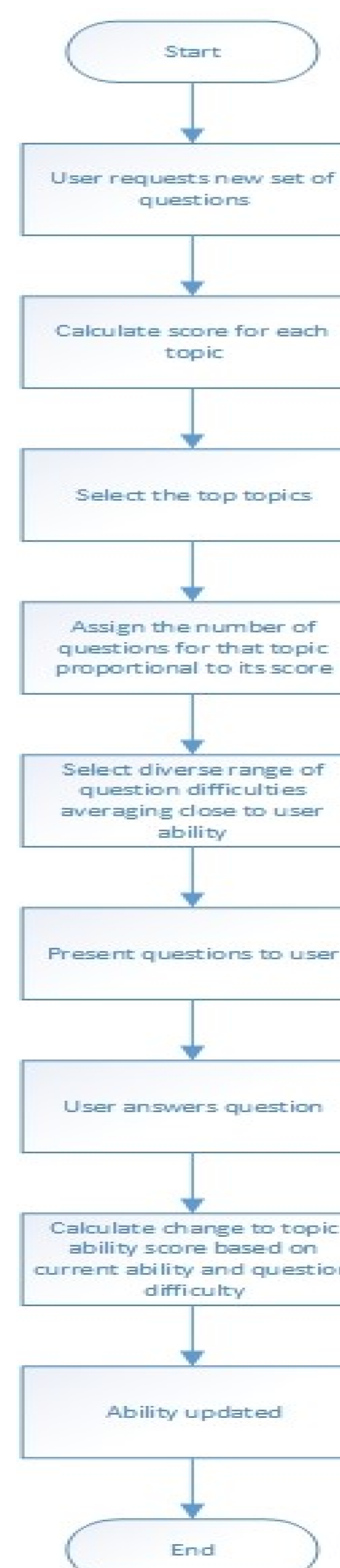
Solution

Create an automated system which:

- Asks and grades a variety of questions types
- Collects and stores data about student performance
- Uses this data to personalise questions for the user

This tool would aim to:

- Increase student satisfaction
- Improve student learning
- Reduce staff workload



Conclusion

The project was successfully implemented, automating the class room questions and assessment process. The results of the trial are very positive and show the system is more effective than the current lab exercises.

- 100% of users preferred the system over the current one
- 100% of users would want this implemented into the module
- Users found questions more suited to their ability
- Users were able to get feedback for code questions
- Several usability issues were highlighted
- Algorithm isn't avoiding recently completed questions

Future Work

The project has shown to be a success and is a good foundation, but there is more improve and add.

- More messages to guide user though process
- Hashed link ID
- Class finder libraries
- Implement into a live learning environment
- Expand trial to test algorithm against others to prove its validity and fine tune it

