Objectives for the proposed system

Overall objectives:

1. The proposed system must be interactive.
2. The proposed system must enable people to self study without needing to go to lessons.
3. It must be able to be used in bite sized chunks and be enjoyable thereby allowing people with less time to absorb large amounts of information to prepare them for an exam.
4. It must be able to be used alongside the current system.
5. In a question for a run or timed run of Dijkstra’s algorithm the starting vertex must be indicated.
6. The proposed system must be informative.
7. The proposed system must be able to be accessed through the D1 Moodle resources.
8. The proposed system must be able to be used by students without any specialist software.
9. The proposed system must be able to be saved onto and used from memory sticks and CDs.
10. The proposed system must be completed by Easter at the latest.
11. It must encourage students to use it.
12. It must be able to be used by the teacher; by themselves and to teach lessons.
13. It must help students to complete past exam papers on the topic.
14. The proposed system must find the minimum connector of a network for runs and timed runs of Kruskal’s algorithm, Prim’s algorithm network form and Prim’s algorithm tabular form.
15. The proposed system must find the shortest route between two vertices along with its weight for runs and timed runs of Dijkstra’s algorithm.
16. The proposed system should able to be expanded and updated to include other sections of the D1 module.
17. The proposed system should be able to be replicated for other Mathematics and Computing modules.
18. It should also be able to be used without the D1 textbook, the D1 revision guide, the MEI Integral site, The D1 Moodle resources and the teacher.
19. It should teach people about all four of the algorithms.
20. It should be able to be used alongside PowerPoint’s on the subject.

Specific objectives:

1. The system must be able to process and display all of the forenames, times and ranks of those students who have completed timed runs; when requested by the user.
2. The proposed system must run and teach students about at least one of the four algorithms.
3. The program must display the network and the question being answered when either a run or a timed run of the algorithm is chosen.
4. The proposed system must display a set network for runs and timed runs of Kruskal’s algorithm, Prim’s algorithm network form and Dijkstra’s algorithm.
5. The proposed system must display a table for runs and timed runs of Prim’s algorithm tabular form.
6. The proposed system must be able to store at least 100 students forenames along with their times and ranks for timed runs of the algorithms.
7. The timer must be displayed on the screen when the user does a timed run of an algorithm.
8. The program must produce the set menu that it will be coded for when it is started, when the quit button is pressed during runs and timed runs of algorithms and when displaying the times achieved by students.
9. All the times achieved from timed runs of algorithms must be stored in order starting with the quickest time and inputting the rest downwards.
10. The proposed system must store all of the times for timed runs of each algorithm in different files therefore there is only the times achieved for Kruskal’s in one file, times for Prim’s algorithm network form in another, times for Prim’s algorithm tabular form in another and times for Dijkstra’s algorithm in another.
11. The proposed system must be completed by Easter for my end user.
12. It must output an error message if the forename entered contains characters that can’t be stored as string, contains spaces or contains 0 characters.
13. It must display the working involved in performing the algorithm for runs and timed runs of each algorithm. However timed runs will do this immediately and runs will be slower so that the student can see what is going on.
14. It must save the times, forenames and ranks of students into separate files for each timed run of an algorithm.
15. When the user chooses quit on the main menu it must exit the program.
16. The data stored in the proposed system should be able to be easily updated and maintained.
17. The proposed system should be able to run Kruskal’s algorithm, Prim’s algorithm network form, Prim’s algorithm tabular form and Dijkstra’s algorithm in both runs and timed runs.
18. The proposed system should turn the arcs or vertices red if they have been chosen by the user and are correct in runs and timed runs of algorithms.

Analyst Signature: …………………………………….. End User Signature: ………………………………………….

Date: