Requirement/Technical Specification

Input should read in without errors, format errors with integers should be caught.

File read failure should be caught and the program should prompt the user for a new quiz file name if the file cannot be found.

When reading the question number in the letter 'R' for random should be allowed but not any other letter or symbol.

Memory allocations with malloc should be freed otherwise memory leaks will occur.

When choosing a question, the question number you enter must be between 1 and the question number stored at the top of the file.

When choosing a correct answer, choices need to be validated to be between 1 and 4 (hard coded at 4 for number of answer choices).

When checking command line input, the variables need to be checked to exist or otherwise prompt for input.

Command line input needs to be checked for valid input and not make the program go into never-ending loops.

Verification Specification

To check integer format errors, any input with scanf() should be put into a character buffer first and then checked with isdigit().

File read failure can be done by checking if the file handler is null and also the number of questions which will be 0 if it hasn't managed to read the file.

Checking the question is R should be done first with strcmp() as it's a string.

Memory should be freed on program exit for arrays that are needed for the duration, other temporary variables after they are used.

If the strcmp() check completes on the question number, checking if it's a digit should be nested inside and finally the range of the number nested inside that.

Same with the answer, should be checked with isdigit() first and then range checked after it has been converted to an integer with atoi()

Command line input should be checked wherever it is used by first checking if the number of arguments is right for that particular stage of the process, for example the question comes at position greater than 2. Then the value can be copied out of the argument array into a variable that has been previously set to "" and checked by the

program with strcmp(). If it still equals "" nothing has been added and so we prompt the user for input.

If any invalid command line input is found, quit after the invalid input. Check this with an if statement nested inside the if for the invalid input checking the bounds of the command line array.

Verification Record

1) Integer format input on question select (tested by entering a letter)

2) File read failure (tested by entering the name of a file which doesn't exist)

3) Checking if R is allowed for the question number input (entering R)

4) Checking the range for question (testing by entering -1,0 and 9 (8 questions in file))

```
File Edit View Terminal Help
student@ubuntu:~/NetBeansProjects/SuperCQuiz/dist/Debug/GNU-Linux-x86$ ./supercq
uiz
Enter name of quiz to start: quiz
You selected quiz quiz!
8 Questions In File
Enter question number to display (1 - 8) or R for a random question:-1
Enter question number to display (1 - 8) or R for a random question:0
There are only 8 questions! Enter a number between 1 and 8.
Enter question number to display (1 - 8) or R for a random question:9
There are only 8 questions! Enter a number between 1 and 8.
Enter question number to display (1 - 8) or R for a random question:
```

5) Checking the range for answer (testing by entering -1,0 and 5)

```
There are only 8 questions! Enter a number between 1 and 8.
Enter question number to display (1 - 8) or R for a random question:1
Your Question is: 1)What is the capital city of Jamaica?
Choose the Correct Answer:
1) Kingston
2) Princeton
3) Crawford
4) Portmore
Enter your choice:-1

Invalid Answer Number!
Enter your choice:0

Invalid Answer Number!
Enter your choice:5

Invalid Answer Number!
Enter your choice:2
Incorrect this time, sorry!
Do you want to answer another question? Y or N:
```

6) Checking number format on answer (entering a letter)

```
Do you want to answer another question? Y or N: Y
Enter question number to display (1 - 8) or R for a random question:1
Your Question is: 1)What is the capital city of Jamaica?
Choose the Correct Answer:
1) Kingston
2) Princeton
3) Crawford
4) Portmore
Enter your choice:f

Invalid Answer Number!
Enter your choice:floor

Invalid Answer Number!
Enter your choice:,

Invalid Answer Number!
Enter your choice:
```

7) Checking command line input is picked up (entering command line args)

```
student@ubuntu: ~/NetBeansProjects/SuperCQuiz/dist/Debug/GNU-Linux-x86
File Edit View Terminal Help
student@ubuntu:~/NetBeansProjects/SuperCQuiz/dist/Debug/GNU-Linux-x86$ ./supercquiz quiz
You selected quiz quiz!
8 Questions In File
Enter question number to display (1 - 8) or R for a random question:
```

```
student@ubuntu: ~/NetBeansProjects/SuperCQuiz/dist/Debug/GNU-Linux-x86
File Edit View Terminal Help
student@ubuntu:~/NetBeansProjects/SuperCQuiz/dist/Debug/GNU-Linux-x86$ ./supercquiz quiz 3
You selected quiz quiz!
8 Questions In File
Your Question is: 3)What is the tallest building on earth?
Choose the Correct Answer:
1) Taipai 101
2) Burj Khalifa
3) Petronas Towers
4) Willis Tower
Enter your choice:
```

```
student@ubuntu: ~/NetBeansProjects/SuperCQuiz/dist/Debug/GNU-Linux-x86
File Edit View Terminal Help
student@ubuntu:~/NetBeansProjects/SuperCQuiz/dist/Debug/GNU-Linux-x86$ ./supercquiz quiz 3 3
You selected quiz quiz!
8 Questions In File
Your Question is: 3)What is the tallest building on earth?
Choose the Correct Answer:
1) Taipai 101
2) Burj Khalifa
3) Petronas Towers
4) Willis Tower
Incorrect this time, sorry!
Do you want to answer another question? Y or N:
```

```
student@ubuntu: ~/NetBeansProjects/SuperCQuiz/dist/Debug/GNU-Linux-x86
File Edit View Terminal Help
student@ubuntu:~/NetBeansProjects/SuperCQuiz/dist/Debug/GNU-Linux-x86$ ./supercquiz quiz 3 3 N
You selected quiz quiz!
8 Questions In File
Your Question is: 3)What is the tallest building on earth?
Choose the Correct Answer:
1) Taipai 101
2) Burj Khalifa
3) Petronas Towers
4) Willis Tower
Incorrect this time, sorry!
0 correct answers, 1 incorrect answers. Your score: 0/1
Correct:
Incorrect:
3)What is the tallest building on earth? Your Answer: Petronas Towers
student@ubuntu:~/NetBeansProjects/SuperCQuiz/dist/Debug/GNU-Linux-x86$
```

8) Checking command line is in right format (entering invalid args)

```
student@ubuntu: ~/NetBeansProjects/SuperCQuiz/dist/Debug/GNU-Linux-x86
File Edit View Terminal Help
student@ubuntu:~/NetBeansProjects/SuperCQuiz/dist/Debug/GNU-Linux-x86$ ./supercquiz quh 9
You selected quiz quh!
quh.txt: No such file or directory
student@ubuntu:~/NetBeansProjects/SuperCQuiz/dist/Debug/GNU-Linux-x86$
```

```
student@ubuntu: ~/NetBeansProjects/SuperCQuiz/dist/Debug/GNU-Linux-x86
File Edit View Terminal Help
student@ubuntu:~/NetBeansProjects/SuperCQuiz/dist/Debug/GNU-Linux-x86$ ./supercquiz quh 9
You selected quiz quh!
quh.txt: No such file or directory
student@ubuntu:~/NetBeansProjects/SuperCQuiz/dist/Debug/GNU-Linux-x86$ ./supercquiz quiz 9
You selected quiz quiz!
8 Questions In File
student@ubuntu:~/NetBeansProjects/SuperCQuiz/dist/Debug/GNU-Linux-x86$
```