

DATA STRUCTURE PROJECT REPORT

DECKNNAIRE

Submitted to:

Prof. Vikash

Submitted By:

20103267 - Ishika Jain
20103266 - Astha Agarwal
20103254 - Geetali Agarwal
20103251 - Riya Kansal

Batch - B9

Team No. - 7

INTRODUCTION

PROBLEM STATEMENT :

Most card games have a deck of cards, some of which use queue implementation while some, like discard piles, act more like a stack.

In our card game, there will be two decks of cards. The deck of unanswered questions (with each card having a question on it) and the discard deck. The player will select a card from the deck of unanswered questions or from the top of the discard pile. The question is displayed and the player answers the question displayed. If the question is answered correctly, the card is placed at the bottom of the deck and will be removed from the queue. If the question is answered incorrectly it is placed on the top of the discard pile.

For every correct answer, the player gets some points, let's say 'x' and wins the game with a score of '5x' or else the game will be finished if the player's card runs out.

IMPLEMENTATION

FUNCTIONALITY:

The unanswered deck of cards will be implemented using a queue implemented with a circular linked list. The queue will perform the following functions :

Enqueue : to place correctly answered questions back into the deck

Dequeue : for selecting the card from the front of the deck , etc .

The discard deck will be implemented using a stack with a linear linked list of arrays .

Each element of the array will be a card . Each array should hold no more than 5 cards.

The stack will perform the following functions :

Push : When the player incorrectly answers a question

Pop : When the player selects the discarded question

TECHNOLOGIES USED:

- FILE HANDLING

In the software industry, most of the programs are written to store the information fetched from the program. One such way is to store the fetched information in a file. Different operations that can be performed on a file like Creation of a new file, Opening an existing file, Reading from file, Writing to a file etc.

Data Structures

- STACK

Stack is a linear data structure which follows a particular order in which the operations are performed. The order may be LIFO(Last In First Out) or FILO(First In Last Out).

- QUEUE

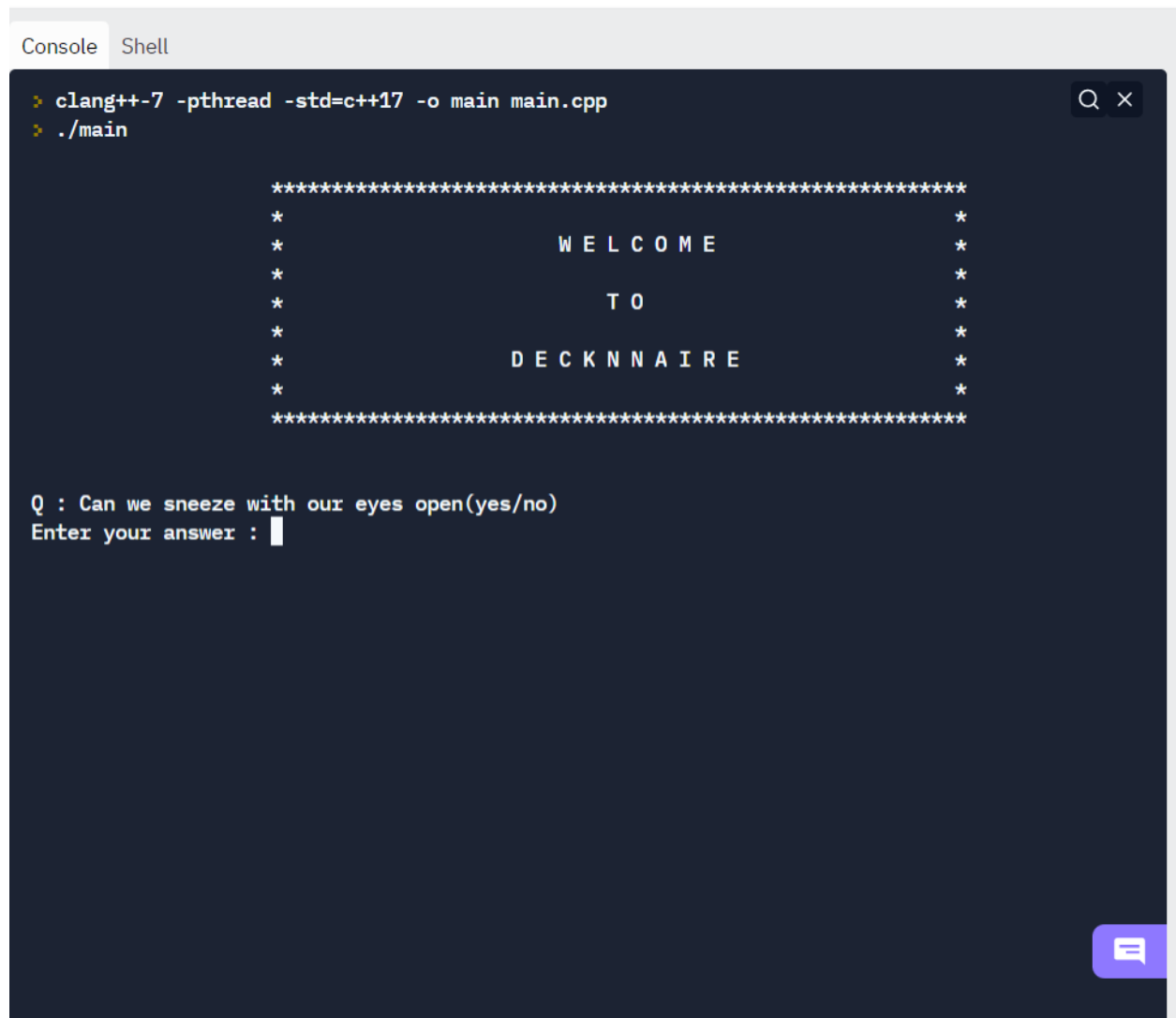
A Queue is a linear structure which follows a particular order in which the operations are performed. The order is First In First Out (FIFO).

RESULT / CONCLUDING REMARKS

A card game has been successfully implemented using stack, queue and file handling, where the player is supposed to answer some general knowledge questions and gets a point for each correct answer and wins the game if he's able to touch a score of 5 points.

SCREENSHOTS

1 . Welcome page



```
Console Shell
> clang++-7 -pthread -std=c++17 -o main main.cpp
> ./main

*****
*                                     *
*               W E L C O M E       *
*                                     *
*               T O                 *
*                                     *
*               D E C K N N A I R E  *
*                                     *
*****

Q : Can we sneeze with our eyes open(yes/no)
Enter your answer : 
```

2 . When the user answers the question wrong , a card from the discard pile is displayed and the user can choose whether to answer that question or not .

```
Console Shell
❯ clang++-7 -pthread -std=c++17 -o main main.cpp
❯ ./main

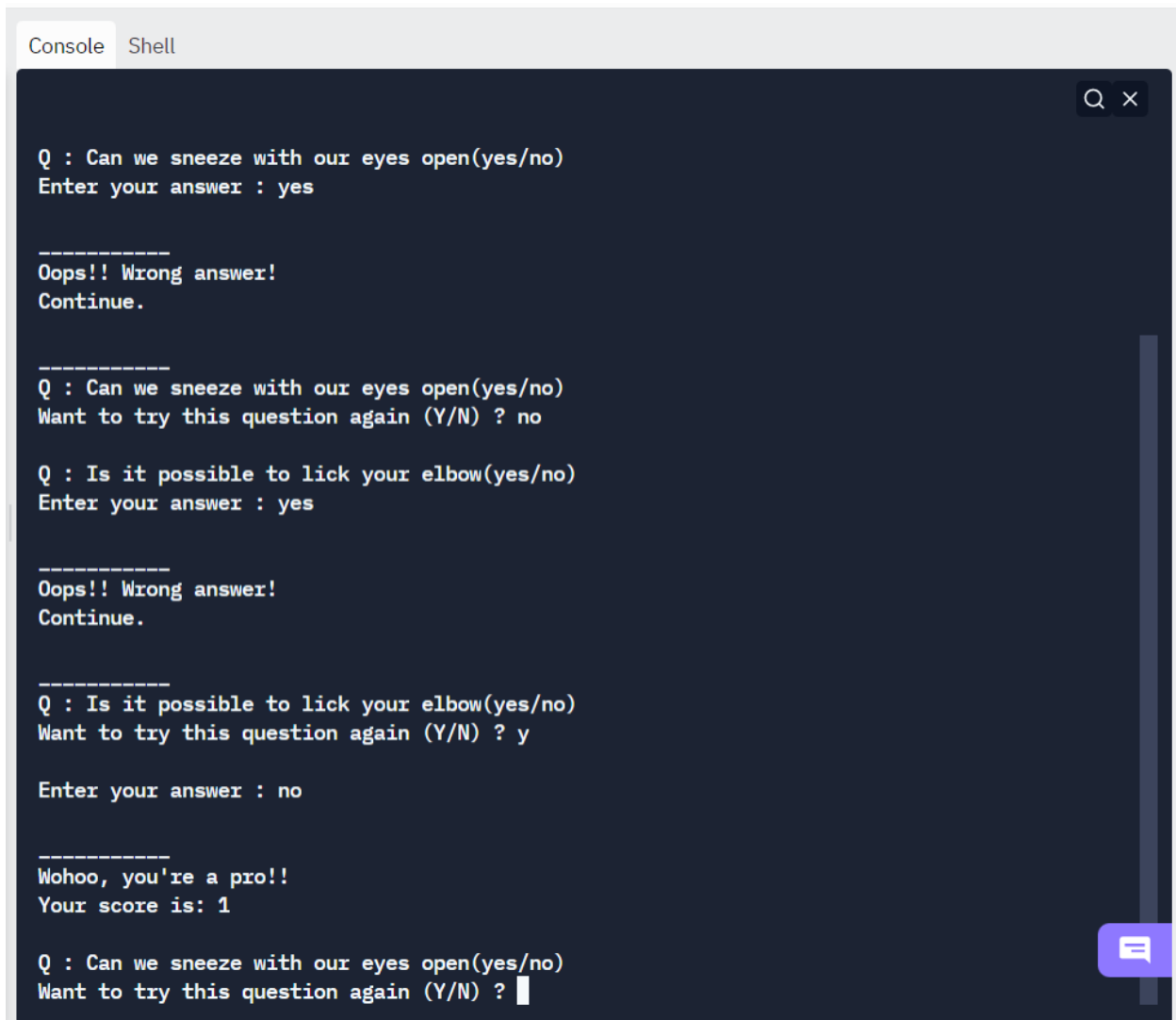
*****
*                                     *
*               W E L C O M E       *
*               T O                 *
*               D E C K N N A I R E  *
*                                     *
*****

Q : Can we sneeze with our eyes open(yes/no)
Enter your answer : yes

-----
Oops!! Wrong answer!
Continue.

-----
Q : Can we sneeze with our eyes open(yes/no)
Want to try this question again (Y/N) ? █
```

3 . When the user answers a question correctly , the score gets incremented by 1 .



```
Console Shell

Q : Can we sneeze with our eyes open(yes/no)
Enter your answer : yes

-----
Oops!! Wrong answer!
Continue.

-----
Q : Can we sneeze with our eyes open(yes/no)
Want to try this question again (Y/N) ? no

Q : Is it possible to lick your elbow(yes/no)
Enter your answer : yes

-----
Oops!! Wrong answer!
Continue.

-----
Q : Is it possible to lick your elbow(yes/no)
Want to try this question again (Y/N) ? y

Enter your answer : no

-----
Wohoo, you're a pro!!
Your score is: 1

Q : Can we sneeze with our eyes open(yes/no)
Want to try this question again (Y/N) ? y
```

4 . If the user chooses not to answer the question from the discard pile , then a fresh card from the unanswered deck of cards is displayed .

```
Console Shell
*          D E C K N N A I R E          *
*          *          *
*****

Q : Can we sneeze with our eyes open(yes/no)
Enter your answer : no

-----
Wohoo, you're a pro!!
Your score is: 1

Q : Is it possible to lick your elbow(yes/no)
Enter your answer : no

-----
Wohoo, you're a pro!!
Your score is: 2

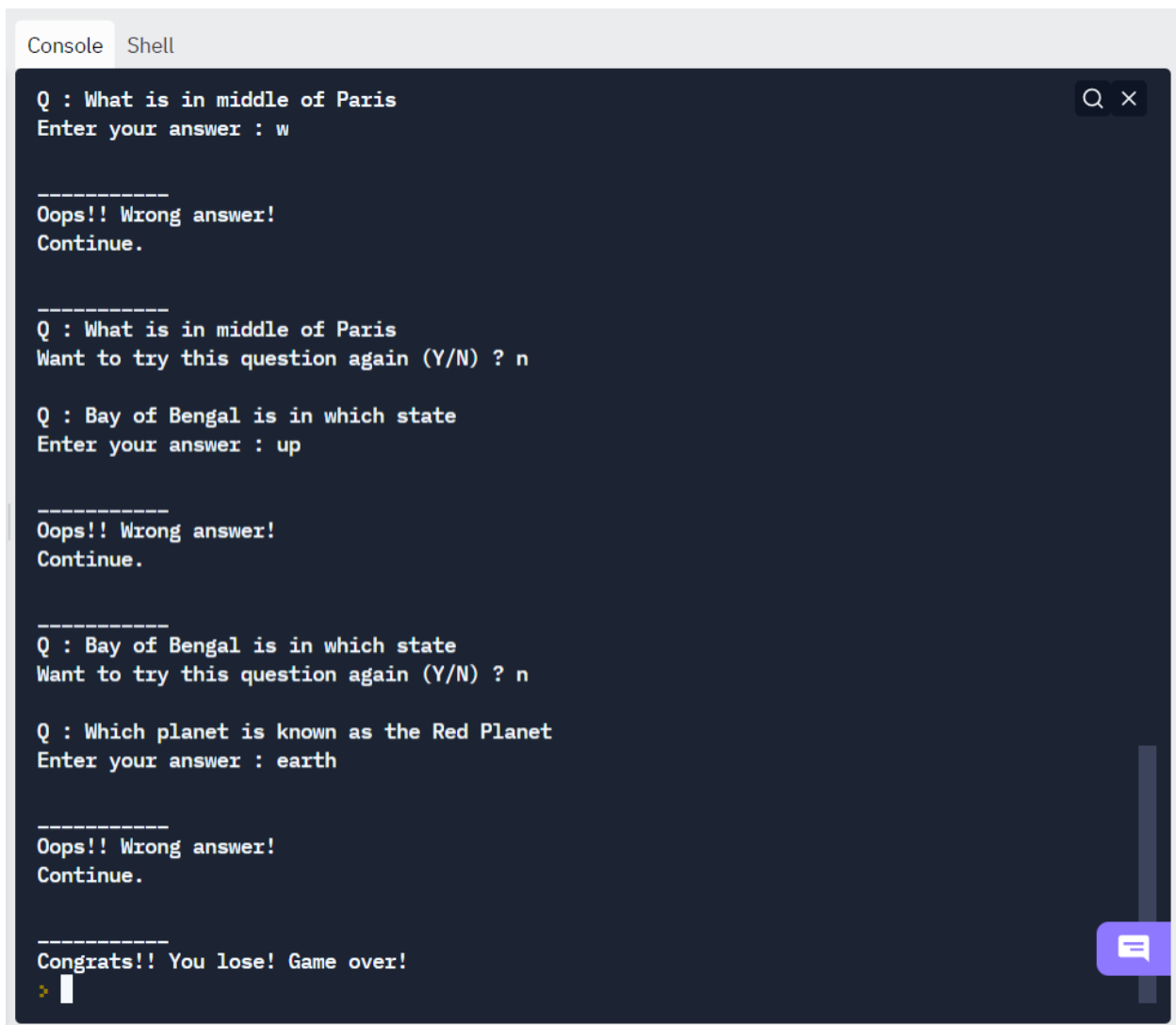
Q : How many hearts does an octopus have
Enter your answer : 88

-----
Oops!! Wrong answer!
Continue.

-----
Q : How many hearts does an octopus have
Want to try this question again (Y/N) ? n

Q : No of bones in human body
Enter your answer : |
```

5 . Total score is displayed at the end of the game along with the results .



```
Console Shell
Q : What is in middle of Paris
Enter your answer : w

-----
Oops!! Wrong answer!
Continue.

-----
Q : What is in middle of Paris
Want to try this question again (Y/N) ? n

Q : Bay of Bengal is in which state
Enter your answer : up

-----
Oops!! Wrong answer!
Continue.

-----
Q : Bay of Bengal is in which state
Want to try this question again (Y/N) ? n

Q : Which planet is known as the Red Planet
Enter your answer : earth

-----
Oops!! Wrong answer!
Continue.

-----
Congrats!! You lose! Game over!
> |
```

ConsoleShell

Q : Which planet is known as the Red Planet
Enter your answer : earth

Oops!! Wrong answer!
Continue.

Q : Which planet is known as the Red Planet
Want to try this question again (Y/N) ? n

Q : How can a man go eight days without sleep
Enter your answer : By not sleepng

Oops!! Wrong answer!
Continue.

Q : How can a man go eight days without sleep
Want to try this question again (Y/N) ? n

Q : What was the first animal sent into Space
Enter your answer : dog

Wohoo, you're a pro!!
Your score is: 3

Sorry !! You lose! Game over!

>

_____ || THANK YOU || _____