**Methodology**

**1. Main Menu**

The user will be first taken to the betting function to give him an option whether to place bets or not. Then he will be given two option 1 or 2.

1 for entering the Game Menu function and selecting 1 out of the 3 games.

2 for entering the Exit function and exit the program.

For any other number inputted it will display invalid input and redirect to main function.

![Diagram

Description automatically generated]()

**2. Game Menu**

The user will be given three options 1,2 or 3.

1 for entering the Card Guesser game function.

2 for entering the 7Streak game function.

3 for entering the Blackjack game function.

For any other number inputted it will display invalid input and redirect to main function.

After the game chosen by user ends he will be redirected to Play Again function.

![Diagram

Description automatically generated]()

**3. Card Guesser**

The user will be asked to enter a number between 1 and 13 and a suit out of Heart, Diamond, Spade, Clubs. A random number and suit will also be generated by the program.

If the card number and suit matches then user wins thrice the bet and is displayed a winning message. If either the number or suit matches then user wins twice the bet and is displayed what was wrong out of number and suit. If nothing matches then his bet is halved and he loses.

After the game ends he will be redirected to Play Again function.

![Diagram

Description automatically generated]()

**4. 7Streak**

A random number will be generated by the program ranging from 10 to 999. If the number is 70-79 or 770-779,

For number 777 user gets 10 times his bet and is displayed Big Jackpot.

For number 770-779 except 777 user gets 5 times his bet and is displayed Medium Jackpot.

For number 77 user gets 3 times his bet and is displayed Small Jackpot.

For number 70-79 except 77 user gets 2 times his bet and is displayed Mini Jackpot.

For no matches user’s bet is halved and is displayed that he loses.

After the game ends he will be redirected to Play Again function.

![Diagram

Description automatically generated]()

**5. Blackjack**

At start of game two cards will be added to both dealer and player and their hands will be displayed. Also player hand sum will also be displayed. If dealer hand sum is equal to 21 then he wins as it is a blackjack.

![Diagram

Description automatically generated]()

![Diagram

Description automatically generated]()

If not and if player hand sum is equal to 21 then he wins as it is a blackjack otherwise the program enter a while loop which runs till either of the dealer and player wins or it is a tie.

The player is given an option to hit and if he choses to then a card is added to his hand, summed and his cards are displayed. If his hand sum exceeds 21 it is a bust and he loses.

![Diagram

Description automatically generated]()

If player choses not to hit rather stand then his turn ends and then it is checked whether dealer hand sum is less than 17 or not. If it is less than 17 then a card is added to his hand and checked whether it exceeds 21 or not. If it exceeds 21 then it is bust and he loses.

If dealer hand sum is not less than 17 then his turn ends.

![Chart, diagram

Description automatically generated]()

Then it is checked if either of the player and dealer has hand sum equal to 21. If yes then the respective one wins and if they both have hand equal to 21 then it is a tie.

![Diagram

Description automatically generated]()

If the above 3 conditions are not met then it is checked whose hand is bigger and closer to 21. The one with bigger hand wins or if both have equal hands then it is a tie.

In case there is no outcome the loop reruns.

**6. Betting**

The user is given two options 1 or 2.

1 for entering the amount for betting.

2 for playing the games without any bets.

After they have chosen they will exit the function.

For any other number inputted it will display invalid input and redirect to betting function.

![Diagram

Description automatically generated]()

**7. Exit**

The user is given two options 1 or 2.

1 for exiting the program.

2 for returning to the main menu i.e. main function.

For any other number inputted it will display invalid input and redirect to exit function.

![Diagram

Description automatically generated]()

**8. Rule**

The user is given two options 1 or 2.

1 for displaying rules of blackjack.

2 for playing the game without display of rules.

After they have chosen they will exit the function.

For any other number inputted it will display invalid input and redirect to rule function.

![Diagram

Description automatically generated]()

**9. Play Again**

The user is given two options 1 or 2.

1 for being redirected to main function.

2 for being redirected to exit function.

After they have chosen they will exit the function.

For any other number inputted it will display invalid input and redirect to play again function.

![Diagram

Description automatically generated]()