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CS161

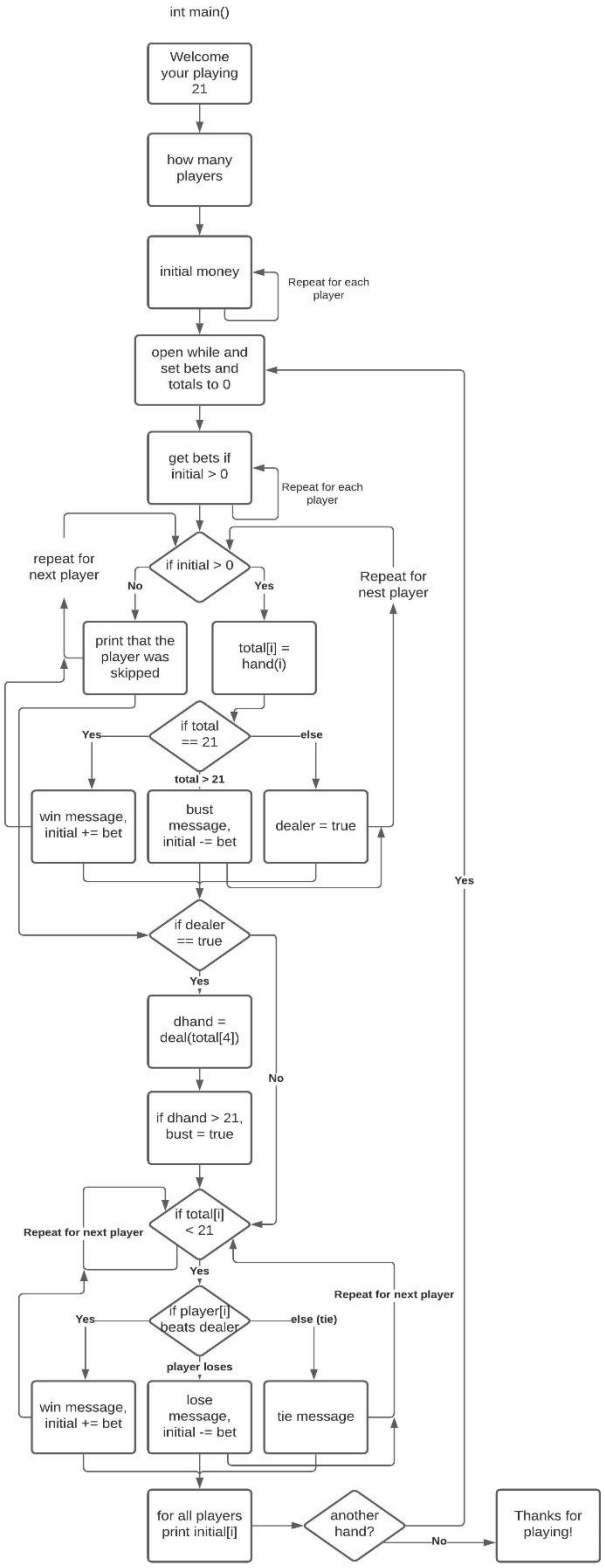
21 Design Document

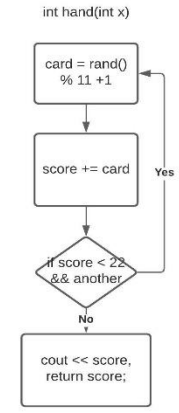
Problem Statement: Write a c++ program that plays a game of 21 as the dealer against one to four players. The players play against the dealer simultaneously. The program tasks include:

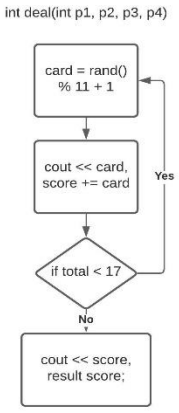
- Keeping track of the user's money and bets.
- Generating random cards from 1 to 11.
- Outputting the running card total for the user.
- Checking if the user wins or loses (busts or gets 21) before the dealer's hand.
- Play the dealer's hand to beat the user.
- Allow for and prompt the user to play multiple hands.
- Handle invalid inputs of the expected data type.

Understanding the Problem: The program must get inputs from the user for the number of players, the initial amount of money for each player, their bets, if they'd like another card, and if they would like to play another hand. The program must output what is happening in the game and prompts for the user. The program does not need to output rules for the game as it is assumed that they know how to play. The program needs to handle invalid inputs but can assume that the input is the right data type. The program must use at least two functions other the main.

Devising a Plan:







Testing:

Test Value (a test value that the user could input)	Expected Output (what I expect the program to output)	Match Expected (does plan match expected output)
5 – number of players	Print that the input is invalid and ask the user for an integer between 1-4.	
3 – number of players	Continue to the next part of the program to get bets for the players.	
A – number of players	Breaks the program.	
0 – bet	Print that the input is invalid and ask again for their bet.	
2.4 – bet	Program will truncate the value and treat the bet as 2.	
25 – bet	If the player has at least 25 the program will move on otherwise reprompt.	
Y – another card	Breaks the program.	
3 – another card	Gives the player another card.	
0 – play another hand	Prints the end message and exits.	