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Final Project Write Up

BlackJack

Abstract

Computer games have been increasingly popular since the beginning of the computing era. Games are one of many ways that people use computers and the internet to stay entertained. Many games are taken extremely serious by people, and are a huge money maker for large companies that create in depth and entertaining games. One of the most common type of simple game played on a computer are card games. Virtual card games are used by thousands of people around the world daily. Virtual card games allow for people to play their favorite card games without having a group of people to play with. These games allow players to play against the computer to turn games that would be multiplayer games with a real deck of cards into single player games against an automated opponent. With this all being said, for my final project I chose to create my favorite card game, BlackJack. The game is fully comprehensive and plays just as a regular game of blackJack would. It is a simple single player vs. the dealer type game and allows for the user to play as many hands as they want. The application is user friendly and allows for simple, fun and entertaining gameplay.

Introduction

As previously mentioned, games have always been a part of this computing era. The internet is littered with games, and more and more are produced daily. Behind video streaming, playing games on the computer is one of the largest ways that people entertain themselves on the computer during free time. Card games are a huge portion of the games that are on the internet. Many people throughout the world love to play card games, but can not because they don't have other people to play with. This is the largest fault with card games because the vast majority o card games require more than one player. This is why internet card games are the best way for many people to play the games they love. Using computer games you do not have to worry about playing with other people, as a single player can play any number of card games, playing against automated player. For me, I have always run into similar problems. BlackJack is my favorite card game, but I can never find a full deck of cards, or someone to play with. Therefore, I decided to create a fully comprehensive and working version of BlackJack that you can play in the console of a compiler. With this being said, throughout the rest of the paper, I am going to take you through the creation of the final project. I will talk about what I used to create the game, previous similar games that were helpful to me, as well as how to play the game, and all of the challenges I faced when creating this game of BlackJack. All in all, the rest of the paper will go over the entire application and its creation process from beginning to end.

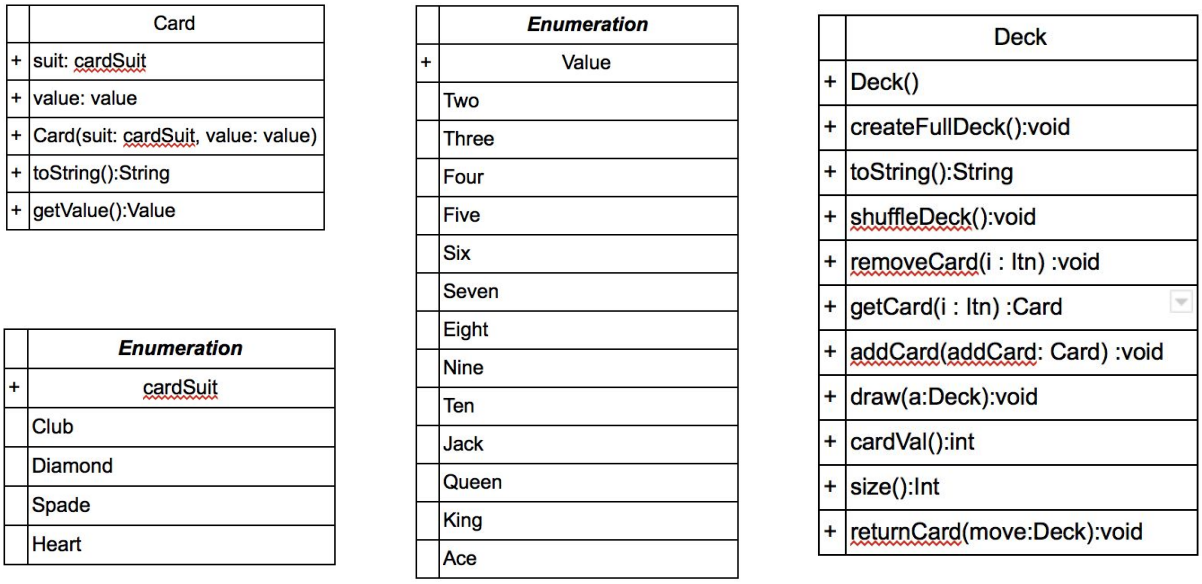
Detailed System Description

The main goal of the system is to provide a fully functional game of BlackJack for a single user to play. The system is an accurate representation of the card game BlackJack and allows people to play the game of BlackJack even when they do not have a partner or other

people to play with. The system is designed for entertainment purposes of the user, and is only meant to be a fun simple game for users to play in their free time. Overall the system solves the problems. First, the system provides entertainment to its user. Second, the system solves the problem of not having a partner or partners to play with because the game is played against the computer. Third, and finally, the system solves the issue of needing to have a full deck to play BlackJack because, the deck is stored within the game and a physical deck is not needed to play. Their is only one user of the system, which is the player of the game. Users are limited in their interaction with the system, as they can only really play the game, although the user can keep having hands dealt until they are bored of the game.

The system uses a combination of five total classes. The value and carSuit classes are enumerated, and are used just as lists to create all of the cards in the deck. The game class contains the main method and is where the game is run from. This class is where everything is printed from and where all of the methods are called, as well as where the deck of cards is created and the user and dealer hands are created. This is also where the winner is determined. The card class creates a card and gives each card a value as well as a suit. The class also contains methods like toString(), which returns the card as a string, which is used to print the cars and value(), which returns the value of each card, which is used many times in the main method including when finding the winner. Finally, the deck class is the most comprehensive class. First, it creates a full deck of 52 cards and gives each card a class and a suit, without repeating any cards. The class has many methods including removeCard(), which removes a card from the deck; getCard(), which gets a specific card in the deck; and addCard(), which adds a card to a deck. Other methods include shuffleDeck(), which shuffles the deck of card; draw(), which

draws a card from the deck and places it in either the user or the dealers hand; cardvVal(), which gives each card the correct value as an integer, it also determines whether an ace should have a value of 1 or 11;size() which returns the size of a hand; and reuturnCard() which returns all cards in the user or dealers hand back to the main playing deck.



Requirements

The system has requires many details in order to make the game work. Every method is very important and the game would not be able to run properly without it. One of the most important requirements of the system is creating the full deck of card. This is done in the system by using two enumerated classes that list all possible values and suits that the cards night have. A for loop is then used to combine each value with all four suits creating. Shuffling the deck is a very important method, because once the deck has been shuffled, the order of the cards will change and cards can be drawn from the top of the deck. The cards are shuffled by using a for

loop and giving each card a random value and then adding the cards to a placeholder deck. Another very important requirement is drawing a card. This method has multiple requirements that include, getting a card from the deck, moving the card into the hand of the player or the dealer, and then removing the card from the deck so it will not be drawn again. Other important requirements include replacing the cards that are held in the user and dealers hands at the end of every hand, and placing them back in the deck so another hand can be dealt. These are some of the most important requirements that the system uses.

Literary Survey:

As internet games are extremely popular, there are many card games that have many of the same requirements. For example all card games require the creation of a deck of cards. The use of enumerated classes is the simplest way to create a whole deck of cards, but it can also be done by using arrays, however it is not as effective, and more difficult to program. Similarly all card games need to be able to shuffle the deck of cards that has been created. Shuffeling the deck is done by predominantly by using a for loop and a temporary deck, like it is done in the system. However it can be done by creating a swap method, and instead of moving the card to a new deck, simply just switching the index of two cards in a for loop that runs through the whole deck and swaps the cards. Other programs use similar methods for creating the draw card method and the replace card method, as these methods are rather straightforward and do not provide much room for interpretation or changing of the code.All in all, using research, the system used many similar ways to accomplish the requirements as other popular card games throughout the internet do.

User Manual

When the system is run, it welcomes the user, and begins dealing the first hand. Once two cards are dealt to both the user and the dealer, the system displays the users cards, tells the user the value of their cards, and just like in a traditional BlackJack game tells the user what card the dealers has face up, and says the dealer has a second card but it is hidden. The user then has the option to hit or stay. If the user chooses to hit another card is drawn and the user is again told what his hand contains and the value of his hand. The user is asks if he would like to hit again until he chooses to stand. Once the user has chosen to stand it is the dealers turn to draw cards. Just like in a traditional game of BlackJack, the dealer will hit, if necessary, until the dealer's hand has a value of the dealers hand is greater or equal to 17. Once the dealers hand reaches a value of 17 or greater, the cards are revealed, and the outcome is told to the user. If the user's hand is greater than the dealer, the user wins. If the dealer's hand is greater, the dealer wins. The system also calculates if either the dealer or the user went over 21, in which case it will tell the user if he or the dealer busted. Finally if the values of the dealers cards and the users are equal, the system tells the user that it is a push, or the hand is a tie. Once the round is over and either a winner is named or it is ruled a push, the user is asked if they would like to play another hand. If the user selects to play again, another hand will be dealt and the user will have the option after every hand to play again or quit, in which case the system will thank the user for playing and quit.

Conclusion

To conclude, the systems main purpose is to solve the everlasting human problem that has plagued our ancestors since the beginning of time, boredom. The system creates a perfect representation of the card game best known as BlackJack. The system solves the problem of not having a partner to play with by offering a single player game in which the player plays against the dealer, which is completely automated. The system allows for people who spend a lot of time alone, to spend their free time entertained by playing one of the most popular card games throughout the world. One of the largest struggles with playing card games comes from needing a physical deck of cards, with no missing cards to correctly play games. The system also fixes this problem as the deck is built into the game, and a physical deck is not needed to play the game. As virtual games continue to rise, more and more people continue to look for new games to play, and the system provides a game that is destined to be used by people who love to play card games but either can not because they don't have people to play with, or do not have a deck of card.

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