Unit Two: Summative Assessment

Topics Covered: Iteration and Selection

Title: The Game of BlackJack

The object of this assessment is to improve on the programming concepts covered in the first unit and to introduce the concepts of iteration and selection.

In this assignment you will be creating a one player game of blackjack where the player will compete against a single computer generated player – the dealer. The game will use the rules for Blackjack that has been outlined below. In this game, the user will start with 500 dollars and will be able to make bets at the start of each hand in addition to being able to “Double Down” after they have received their original two cards.

The rules for the game of Blackjack that we will be using are as follows:

Blackjack is a card game in which each player is dealt 2 cards, both face up, and the dealer is dealt 1 card face up and 1 face down. The object is to obtain a hand in which the card values add up to 21 without going over. Face cards count as 10, aces are 1 or 11 and all other cards carry their face values. Players can choose whether to be dealt another card in the attempt to come closer to 21.

What It Means to Double Down

1. Increase the profitability of your hand by doubling your original bet when you have a good chance of winning.
2. Realize that you will get only one more card. You may not hit (ask for another card) again.

How the Dealer Plays

1. The dealer will always play after the user has finished their hand.
2. The user will see only the dealer’s first card during play until they have busted or decided to stay.
3. The dealer will display their second card as soon as the user has busted or decided to stay.
4. The dealer must take another card if they are losing and the total of their cards is less than 17.
5. The dealer may not take another card if the sum of their card has reached a total of 17.

The game will begin by asking the user for their first name and the Locale they will be using to display their currency. This will allow the application to allow players to choose from a list of locales after entering their name. You should include the entire possible set locales from the Locale API. If the user does not select an appropriate locale they will be requested to re-enter a locale.

For example:

1. Canada
2. United States
3. Germany
4. …

Please enter the letter representing the Locale:

To simulate the cards you should assume that there are many decks of cards being used at the same time, similarly to the way the game is played in Las Vegas. This will mean that you will not need to simulate an actual deck of cards but the shoe will contain an infinite number of cards in a random order.

To obtain a card from the shoe you will create a Random number using the Random class API. You should also obtain the type of card that was dealt – (Hearts, Clubs, Spades, and Diamonds). A seven of hearts would be displayed as 7H and an ACE of diamonds would be displayed as AD. When the dealer has one of his cards hidden, it will display as XX.

Since we have not learned how to use arrays yet, you will need to create two variables for each card that the player or dealer has in their hand. One will be the card value and the other will be the type of card. Think of which primitive data type should be used for each of these.

After a hand has been played, the user’s bankroll will be updated as a result of them winning or losing the hand. When a hand has completed, the user will be able to play again or leave the game. This question must be presented to the user. If the user decides to quit the game instead of playing another hand the application will not quit but return to the prompt where it asks for a user’s name to play Blackjack.

The application will continue to run indefinitely until the user enters ***quit*** when prompted for their name. They may enter quit in any case. This should be how the game begins when the application starts (I.e. When the application begins, the user will be able to enter quit).

The developer is given the freedom to design what the game will look like but should ensure that the game is easy to play and all of the prompts and screens are user friendly.