

Player and Dealer Classes

You are to create two classes. Dealer will be a child of Player. These will be used in the BlackJackGame.cpp that has been uploaded to Moodle. You should build and test Player before you start on Dealer.

Player Class

This is the class that you use to represent you in the Black Jack game. It holds your hand and your betting stake and provided methods to access both.

Class Variables

theHand – this is a BlackJackHand that is created within the Player's constructor and used as the basis for most of the Player class methods.

stake – this is an integer that represents your entire betting stake. It can be set in the overloaded constructor or by a separate method.

bet – this is an integer that represents your bet on this hand. It is used to update the stake after you either win or lose based on your hand vs the dealer's hand.

Class Methods

Default Constructor – creates a new hand and sets the stake to 0

Overloaded Constructor – takes one argument, uses that to set the stake

Destructor – deletes the hand when the game is over

bool takeCard(PlayingCard *c) – add a card to the player's hand.

std::string showHand() – returns a string showing the contents of the hand

int getLowScore() – returns the low score of the hand

int getHighScore() – returns the high score of the hand

int getScore() – returns high score unless it is over 21, then it returns lowScore

bool busted() – returns true if the player busted

bool wantCard() – returns true if the player wants a card (getScore < 16)

void clearHand() – clears the cards from the hand for the next deal

void setStake(int stake) – sets the betting stake for the player

int getStake() – returns the current value of the betting stake

bool makeBet(int bet) – saves the bet if it is less than the stake and returns true, otherwise returns false and does nothing

void won() – adds the bet to the stake

void lost() – subtracts the bet from the stake

Dealer Class

Inherits from Player. Adds the ability to deal cards and manage the deck. Does not use the methods for managing bets or stake.

Class Variables

theDeck – pointer to a PlayingCardDeck that is created during the constructor and used for methods that deal cards

Class Methods

Default Constructor – creates a PlayingCardDeck

Overloaded Constructor – takes one argument, uses that to create a PlayingCardDeck and shuffle it

Destructor – deletes the deck when the game is over

std::string showHand() – this is different from the Player showHand in that the first card is shown as XX to indicate that it is face down.

std::string fullHand() – this is used to show the dealer's full hand after the player is done taking cards.

PlayingCard * dealCard() – return the next card from the deck.

int cardsLeft() – return how many cards are left in the deck

void shuffle() – this resets and shuffles the deck to start play over again

Test Driver

There will be three files uploaded to Moodle. DealerTest and PlayerTest should be used to validate your Dealer and Player hands. BlackJackGame is a full game that will use all of the files you have created (by including Dealer and Player) to provide a game where you play Black Jack against the computer using a single deck and drawing on soft 16. This game does not support splitting or doubling down – if you want to add these features later, it will require modifying the game and the player class.

Review Criteria

The following are the criteria that you are to use for your peer review and that I will use for grading.

Criteria	Expected Results	Pass/No
Inheritance	Dealer does not duplicate methods unnecessarily	
	Proper use of Private/Protected/Public	
	Proper use of overwriting method	
	Proper adding of new variables and methods	
Design	Programs properly broken into .h and .cpp files	
	Comments used to explain code	
Works	Program compiles and runs with test routine	
	Output matches that expected from test routines	