

HELLENIC MEDITERRANEAN UNIVERSITY

Electrical engineering and computer engineering Plan driven and agile programming

Assignment

Develop a JAVA program that will simulate the hearts game you developed in the previous exercise, this time using basic object-oriented principles.

In particular, you must implement:

- **CardsDealer**—Interface that defines what someone who handles a card game should do.

Contains the methods:

- void **showDeck()**; *//shows all the cards on the deck*
- Card **dealRandomCard()**; *//returns a random card from the deck*
- void **dealToPlayers**(Object player1, Object player2); *//assings cards to the players*
- void **decideWinner**(Object player1, Object player2); *//decides the winner*

- **CardsPlayer**—Interface that defines what someone who plays a card game should do.

Contains the methods :

o void **showHand()**; *//shows each player's cards*

- **Card**—Class that represents the card.
- **Deck** - Class that represents the deck.
- **Human**—Abstract class that represents the human.
- **HeartsDealer** - Subclass of the Human that represents the one who assigns hearts in the game and implements the CardsDealer interface.
- **HeartsPlayer**—Subclass of the Human player and implements the CardsPlayer interface.

The main should create an instance of the HeartsDealer class and two instances of the HeartsPlayer class. Then the HeartsDealer will deal 2 players out of 5 cards and after each player shows the cards in their hand, HeartsDealer will announce the result.

Instructions - Steps:

- Implement each of the above classes in a separate file. State the appropriate fields for each class and implement for each at least 2 constructors, all getters and all setters. Always use encapsulation!
- Declare to the Human class the abstract method void introduceSelf (), which prints the data of each individual and implement it appropriately in its two subclasses.
- Declare the interfaces in a separate file each.
- Implement the methods that define the interfaces in the classes that implement them.
- Implement your main as spelled out before.

Help:

- Each card has a symbol and a number.
- Each deck has 52 playing cards (array of 52 Cards).
- Each human has a name, a surname and an age.
- Each dealer has a deck.
- Each player has 5 cards in his hand (an array of 5 cards that is empty before the dealt) and a nickname.
- Shared card cannot be reassigned.

Bonus: *(Anyone who follows and implements the following will be awarded extra points)*

- Use API Specification to find out clever ways to print the arrays, compare them, etc..
- The dealer assigns the cards in turn to the 2 players and not 5 to one and then 5 to the other.
- The dealer shuffles the deck and then assigns the first 10 cards to the players, not 10 random cards through the deck (and you should look in the API).
- Change the code in order to:
 - Each player has points.
 - Both players start with 0 points.
 - Each time a player defeats the dealer, he is awarded with 10 points for each heart more than the other player had.
 - The game is played 5 times and the winner is the one who has the most points at the end.