CSCI 1302 Introduction to Programming Principles

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**Due: September 13, 2016 by 1:55pm (Folio Dropbox)**

**Project: Coins Class**

Problem Description:

Write a class that demonstrates the concept of coins. Assume that coins have the following attributes:

* A number of quarters
* A number of dimes
* A number of nickels
* And a number of pennies

Include two constructors: one constructor that takes no arguments but sets each of the coins attributes listed earlier to 2; and a second constructor that has arguments for each coins attributes. Also include the following methods:

* accessors and mutators,
* a toString method
* equals method
* returning the total amount of money in dollar notation with two decimal places
* returning the total amount of money in pennies

Write a client (a test class with the main method) to test all the methods and constructors of your class.

Create a UML diagram that represents your coin class (do not include your tester class).

Analysis & Design:

(Describe the problem including input and output in your own words. Describe the major steps for solving the problem)

1)First make some variables for the 4 American coin types.

2)Create a series of get and set methods.

3)Have users put in coins

4)calculate what each coins is worth

5) give back to the user the total amount of coins coin types and total in dollars with remaining cents.

Coins

-pennies: int

-nickles: int

-dimes: int

-quarters: int

+Coins

+Coins(int pennies, int nickles, int dimes, int quarters)

+getPennies():int

+setPennies(int):

+getNickles():int

+setNickles(int):

+getDimes():int

+setDimes(int):

+getQuarters():int

+setQuarters(int):

+toString:String

Submit the following items:

1. Complete this Word file and Submit to the dropbox.

2. Compile, Run, and Test your code then **submit the .java files** to the dropbox.

import java.util.Scanner;

public class Coins {

private static int pennies;

private static int nickles;

private static int dimes;

private static int quarters;

public Coins() {

pennies = 0;

nickles = 0;

dimes = 0;

quarters = 0;

}

public Coins(int pennies, int nickles, int dimes, int quarters) {

this.pennies = pennies;

this.nickles = nickles;

this.dimes = dimes;

this.quarters = quarters;

}

public static int getPennies() {

return pennies;

}

public void setPennies(int pennies) {

this.pennies = pennies;

}

public static int getNickles() {

return nickles;

}

public void setNickles(int nickles) {

this.nickles = nickles;

}

public static int getDimes() {

return dimes;

}

public void setDimes(int dimes) {

this.dimes = dimes;

}

public static int getQuarters() {

return quarters;

}

public void setQuarters(int quarters) {

this.quarters = quarters;

}

public String toString() {

return null;

}

public static void main(String[] args) {

Scanner scan = new Scanner(System.in);

System.out.print("Enter the number of pennies: ");

int pennies = scan.nextInt();

System.out.print("Enter the number of nickels: ");

int nickles = scan.nextInt();

System.out.print("Enter the number of Dimes: ");

int dimes = scan.nextInt();

System.out.print("Enter the number of Quarters: ");

int quarters = scan.nextInt();

Coins c = new Coins(pennies,nickles,dimes,quarters);

System.out.println(pennies + nickles + dimes + quarters + " Coins ");

System.out.println("Dollars: "+ ( ((double)(pennies)/100) + ((double)(nickles \*5)/100) + ((double)(dimes\*10)/100) + ((double)(quarters\*25)/100) ) );

System.out.println(c);

}

}

//TEST PROGRAM BELOW

import java.util.Scanner;

public class TestCoins {

/\*Coins.pennies();

Coins.nickles();

Coins.dimes();

Coins.quarters();\*/

public static void main(String[] args) {

Coins.getPennies();

Coins.getNickles();

Coins.getDimes();

Coins.getQuarters();

@SuppressWarnings("resource")

Scanner scan = new Scanner(System.in);

System.out.print("pennies: ");

int pennies = scan.nextInt();

System.out.print("nickels: ");

int nickles = scan.nextInt();

System.out.print("Dimes: ");

int dimes = scan.nextInt();

System.out.print("Quarters: ");

int quarters = scan.nextInt();

CharSequence d = ("Dollars: $"+ ( ((double)(pennies)/100) + ((double)(nickles \*5)/100) + ((double)(dimes\*10)/100) + ((double)(quarters\*25)/100) ) );

CharSequence p = ("Pennies: "+ ( ((double)(pennies)/100) + ((double)(nickles \*5)/100) + ((double)(dimes\*10)/100) + ((double)(quarters\*25)/100) ) \*100 );

System.out.println(d);

System.out.println(p);

}

}