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Java Assignment - 2

11

Public class Calculator {

// Add two integers

Public int add (int a , int b) {
 return a+b ;
}

// Add two double -precision floating point nos.

Public double add (double a , double b) {
 return a+b ;
}

// Add three integers .

Public int add (int a , int b , int c) {
 return a+b+c
}

// Sub the second integer from the first .

Public int subtract (int a , int b) {
 return a-b ;
}

// Multiply two double-precision floating - point nos.

Public double multiply (double a * double b) {
 return a*b ;
}

}

// Calls the division method and if errors are handled
// gracefully

Private void perform Division () {

Case 3: // Add two doubles

(3)

```
Sout ("Enter first double : ");
double d1 = scanner.nextDouble();
Sout ("Enter second double");
double d2 = scanner.nextDouble();
Sout ("Result :" + calculator.add(d1, d2));
break;
default:
    Sout ("invalid choice for addition type.");
}
```

{ Catch (InputMismatchException) {

```
Sout ("invalid input please enter no. of correct type.");
scanner.nextLine(); // clear buffer
```

}

}

// invoke the 'Subtract method' to compute & show the difference.

private void performSubtraction () {

try {

```
Sout ("Enter first integer:");
int a = scanner.nextInt();
```

```
Sout ("Enter second integer : ");
int b = scanner.nextLine();
```

```
Sout ("Result :" + calculator.subtract(a, b));
```

{ Catch (InputMismatchException e) {

```
Sout ("invalid input please enter valid integers");
```

Try {

 System.out.println ("Enter the dividend (integer):");
 int a = scanner.nextInt();
 System.out.println ("Enter the divisor (integer):");
 int b = scanner.nextInt();
 double result = calculator.divide (a, b);
 System.out.println ("Result : " + result);

3 Catch (InputMismatchException e) {

 // Handles invalid input [cite: 32]

 System.out.println ("Invalid input please enter valid
 integers!");

 Scanner.nextLine();

3 Catch (ArithmaticException e) { // proper handling

 of divide - by - zero. [cite: 32]

 System.out.println (e.getMessage());

3

3

3

Scanner.nextLine();

④

3 3

// uses the "multiply" method to calculate the product.

private void performMultiplication() {

try {

Scanner("Enter first double:");

double a = Scanner.nextDouble();

Scanner("Enter Second Double:");

double b = Scanner.nextDouble();

Scanner("Result: " + calculator.multiply(a, b));

} catch (InputMismatchException e) {

Scanner("Invalid input please enter valid doubles");

Scanner.nextLine();

2g

}

public static void main(String[] args) {

UserInterface ui = new UserInterface();

ui.mainMenu();

3

// Display the main menu and handles user choice.

public void menu() {

while(true) {

Scanner("n Welcome to the Calculator App ");

Scanner("1. Add Numbers");

Scanner("2. Subtract Numbers");

Sout ("3. Multiply Numbers");
Sout ("4. Divide Numbers");
Sout (" Exit");
Sout ("Enter your choice:");

Q

try {

int choice = scanner.nextInt();

// user control structure effectively for menu
navigation. [cases : 3]

switch (choice) {

Case 1 :

perform Addition();
break;

Case 2

perform Subtraction();

break;

// Handles the addition opp. by calling the appropriate . . . add()
method.

private void perform Addition() {

Sout ("In..... Addition options");

Sout ("1. Add two integers ");

Sout ("2. Add three integers ");

Sout ("3. Add two doubles");

Sout ("Choose add additiontype:");

try {

int choice = scanner.nextInt();

try {

int choice = Scanner.nextInt();

switch (choice) {

Case 1: // Add two integers

Sout ("Enter first integer : ");

int a = Scanner.nextInt();

Sout ("Enter second integer : ");

int b = Scanner.nextInt();

Sout ("Result : " + calculator.add(a, b));

break;

Case 2: // Add three integers.

Sout ("Enter First integer: ");

int x = Scanner.nextInt();

Sout ("Enter Second integer: ");

int y = Scanner.nextInt();

Sout ("Enter third integer: ");

int z = Scanner.nextInt();

Sout ("Result : " + calculator.add(x, y, z));

break;

// Divide the first int by second ~~int~~

public double divide (int a, int b) {

if (b == 0) {

// this handles the divide-by-zero through new

ArithmeticException ("Error : Division by zero is not allowed");

```
    }  
    return (double) a/b;
```

{

{

```
import java.util import mismatch Exception;  
import java.util . Scanner ;
```

```
public class userinterface {
```

```
    private final Calculator calculator;
```

```
    private final Scanner scanner;
```

```
// Scanner object use for input .
```

```
    public User Interface () {
```

```
        this.calculator = new calculator ();
```

```
        this.scanner = new Scanner (System.in);
```

{

```
// main method to start the calculator app -
```

Case 3 :

```
    perform Multiplication ();
```

```
    break;
```

Case 4 :

```
    perform Division ();
```

```
    break;
```

Case 5 :

```
    Sout (" Thank you for using the calculator " ).
```

```
    Scanner.close ();
```

```
return ; // Exit the App .
```

(B)

default :

Sout ("Invalid choice please enter a no. b/w
1 and 5");

}

{ catch (InputMismatchException e) {

Sout ("invalid input please enter a valid integer
choice").

Scanner.nextLine(); // clear the invalid input.

}

}

}