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PG-DAC 2025 AUG

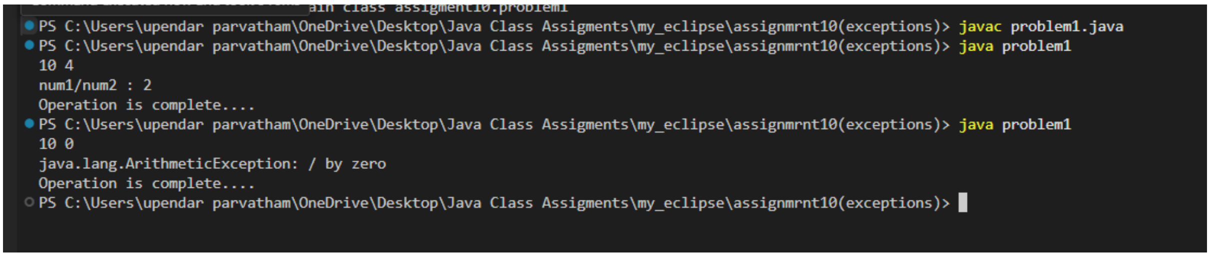
ASSIGNMENT 10(Exceptions)

Problem 1: Division by Zero

Task: Write a program that takes two integers from the user and performs division. Use a try block to perform the division, and a catch block to handle the ArithmeticException in case of division by zero. Ensure that a finally block prints a message indicating that the operation is complete

```
package assigment10;.
import java.util.Scanner;
public class Problem1 {

    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        try {
            int num1 = scanner.nextInt();
            int num2 = scanner.nextInt();
            int div = num1/num2;
            System.out.println("num1/num2 : "+div);
            //throw new ArithmeticException("division by zero error");

        }
        catch(ArithmeticException e) {
            System.err.println(e);
        }
        finally{
            System.out.println("Operation is complete....");
        }
    }
}
```

Output:



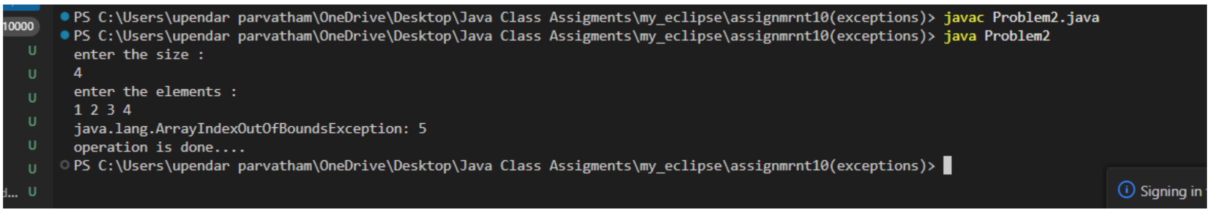
```
ain class assigment10.problem1
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assigments\my_eclipse\assignmrnt10(exceptions)> javac problem1.java
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assigments\my_eclipse\assignmrnt10(exceptions)> java problem1
10 4
num1/num2 : 2
Operation is complete....
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assigments\my_eclipse\assignmrnt10(exceptions)> java problem1
10 0
java.lang.ArithmeticException: / by zero
Operation is complete....
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assigments\my_eclipse\assignmrnt10(exceptions)>
```

Problem 2: Array Index Out of Bounds

Task: Write a program that initializes an array of integers and tries to access an index that is out of bounds. Use a try block to access the array and a catch block to handle the ArrayIndexOutOfBoundsException. Ensure a finally block prints a message indicating the operation is complete

```
package assigment10;
import java.util.*;
public class Problem2 {
    public static void main(String[] args) {
      Scanner scanner = new Scanner(System.in);
      System.out.println("enter the size : ");
      int n = scanner.nextInt();
      int[] arr = new int[n];
      try {
      System.out.println("enter the elements :");
      int i=0;
      for( i=0; i < n ;i++) {
         arr[i]= scanner.nextInt();
      }
      arr[i+1]= 77;
      System.out.println("entered array is : ");
      for(i =0 ; i < n+1;i++) {
         System.out.print(arr[i]+" ");
      }
      }
      catch(ArrayIndexOutOfBoundsException e) {
         System.err.println(e);
      }
      finally {
         System.out.println("operation is done....");
      }
    }
}
```

Output:



```
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assigments\my_eclipse\assignmrnt10(exceptions)> javac Problem2.java
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assigments\my_eclipse\assignmrnt10(exceptions)> java Problem2
enter the size :
4
enter the elements :
1 2 3 4
java.lang.ArrayIndexOutOfBoundsException: 5
operation is done....
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assigments\my_eclipse\assignmrnt10(exceptions)>
```

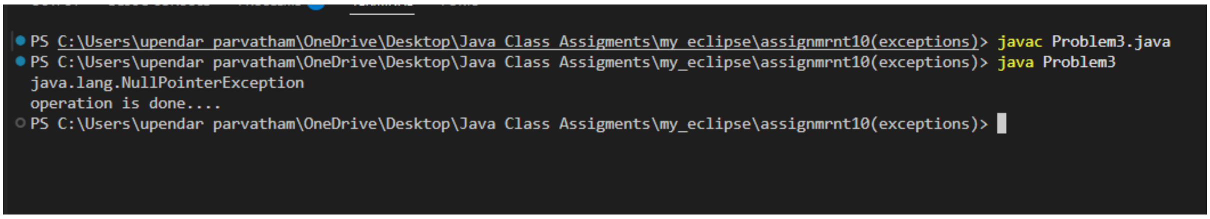
Problem 3: Null Pointer Exception

Task: Write a program that initializes a string variable to null and then tries to call a method on it. Use a try block to call the method and a catch block to handle the NullPointerException. Ensure a finally block prints a message indicating the operation is complete

code:

```
 package assigment10;
public class Problem3 {


   public static void main(String[] args) {
      String s = null;
      try {
         System.out.println("length of : "+s.length());
         //throw new NullPointerException("null");
      }
      catch(NullPointerException e) {
      System.err.println(e);
      }
      finally {
         System.out.println("operation is done....");
      }


   }


}
```

Ouput:



```
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assigments\my_eclipse\assignmrnt10(exceptions)> javac Problem3.java
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assigments\my_eclipse\assignmrnt10(exceptions)> java Problem3
java.lang.NullPointerException
operation is done....
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assigments\my_eclipse\assignmrnt10(exceptions)> 
```

Problem 4: Number Format Exception

Task: Write a program that takes a string input from the user and

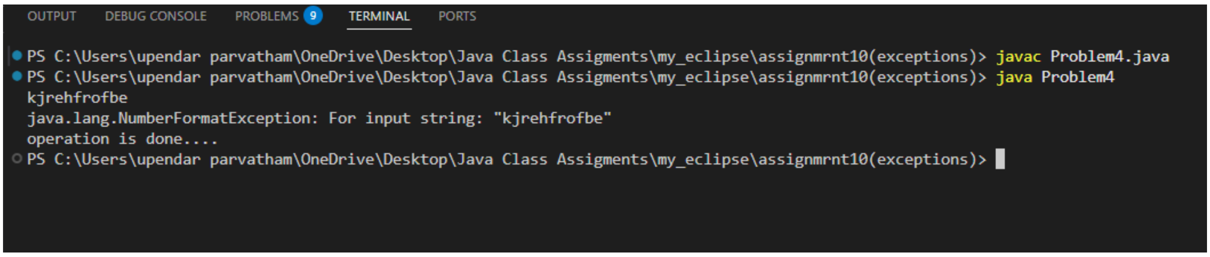
tries to convert it to an integer. Use a try block to perform the

conversion and a catch block to handle the

NumberFormatException. Ensure a finally block prints a message indicating the operation is complete.

```
package assigment10;
import java.io.IOException;
import java.util.*;
public class Problem4 {

    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        String s = scanner.next();
        try {
            int n = Integer.parseInt(s);
            System.out.println("entered string : " + s);
//          throw new NumberFormatException("mismatched....");
        }
        catch(NumberFormatException e) {
            System.err.println(e);
        }
        finally{
            System.out.println("operation is done....");
        }


    }

}
```

Output:



```
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assigments\my_eclipse\assignmrnt10(exceptions)> javac Problem4.java
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assigments\my_eclipse\assignmrnt10(exceptions)> java Problem4
kjrehfrofbe
java.lang.NumberFormatException: For input string: "kjrehfrofbe"
operation is done....
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assigments\my_eclipse\assignmrnt10(exceptions)>
```

Problem5: Nested Try Blocks with Multiple Exceptions

Task: Write a program that demonstrates the use of nested try blocks. The program should perform the following tasks:

try should have two separate try blocks.

In the first nested try:

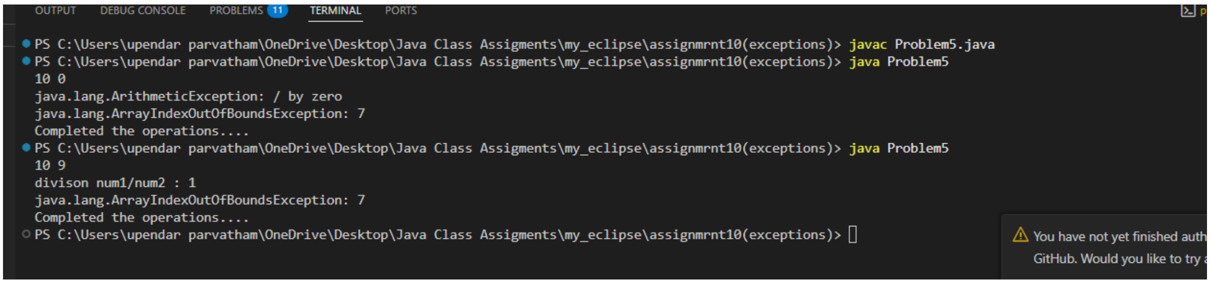
Divide two integers, handling any potential ArithmeticException.

Within the second try block, initialize an array and attempt to access an out-of-bounds index, handling the ArrayIndexOutOfBoundsException.

Ensure that appropriate messages are printed for each exception, and that a final message is printed indicating the completion of the operation.

```
package assigment10;.

import java.util.Scanner;

public class Problem5 {


  public static void main(String[] args) {

    try {

      Scanner scanner = new Scanner(System.in);

      int num1= scanner.nextInt();

      int num2 = scanner.nextInt();
```

```
            try {
               int div = num1/num2;
               System.out.println("divison num1/num2 : "+div);
            }
            catch(ArithmeticException e) {
                System.err.println(e);
            }
            try {
                int[] arr = new int[5];
                arr[7]=567;
            }
            catch(ArrayIndexOutOfBoundsException e) {
                System.out.println(e);
            }
        }
        catch(NumberFormatException e) {
            System.err.println(e);
        }
        finally {
            System.out.println("Completed the operations....");
        }

    }

}
```



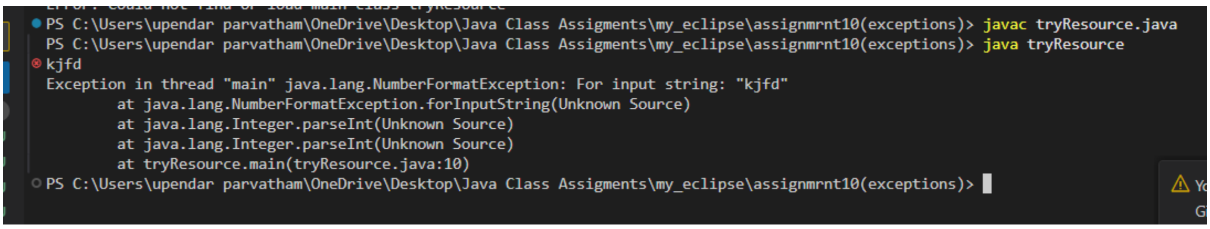
```
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assigments\my_eclipse\assignmrnt10(exceptions)> javac Problem5.java
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assigments\my_eclipse\assignmrnt10(exceptions)> java Problem5
10 0
java.lang.ArithmeticException: / by zero
java.lang.ArrayIndexOutOfBoundsException: 7
Completed the operations....
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assigments\my_eclipse\assignmrnt10(exceptions)> java Problem5
10 9
divison num1/num2 : 1
java.lang.ArrayIndexOutOfBoundsException: 7
Completed the operations....
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assigments\my_eclipse\assignmrnt10(exceptions)>
```

⚠ You have not yet finished auth
GitHub. Would you like to try

Extra problem:

```
package assigment10;


import java.io.IOException;

import java.util.Scanner;

public class tryResource {


    public static void main(String[] args) throws IOException {

        try(Scanner scanner = new Scanner(System.in)){

            String s = scanner.next();

            int n = Integer.parseInt(s);

            System.out.println("converted....");

            System.out.println("operation is done....");

        }


    }


}
```

Output:



```
Error: Could not find or load main class tryResource
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assigments\my_eclipse\assignmrnt10(exceptions)> javac tryResource.java
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assigments\my_eclipse\assignmrnt10(exceptions)> java tryResource
kjfd
Exception in thread "main" java.lang.NumberFormatException: For input string: "kjfd"
        at java.lang.NumberFormatException.forInputString(Unknown Source)
        at java.lang.Integer.parseInt(Unknown Source)
        at java.lang.Integer.parseInt(Unknown Source)
        at tryResource.main(tryResource.java:10)
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assigments\my_eclipse\assignmrnt10(exceptions)>
```

```
package assigment10;

//Problem 6: Create Customer class with the relevant information
//like name, address, id, phone no etc. Write a parameterized
//constructor and relevant methods (disp(), etc) appropriately.
//Create Account class with account type, account number,
//minimum balance etc., Write calculateInterest method (use simple
//interest – assume time and rate appropriately).
//Create a user defined exception class
//“NegativeBalanceException” and throw that exception when there
//is negative balance while calculating the interest.
//Use Account class in Customer class display the details of
//customers with account information. (No Inheritance – use
//association only)


package assigment10;
public class NegativeBalanceException extends Exception {
    public NegativeBalanceException(String message) {
        super(message);
    }
}


public class Account {
    private String accType;
    private double accNumber;
    private static int minBalance=1000;
    public Account(String accType, double accNumber) {
      this.accType = accType;

      this.accNumber = accNumber;

    }

    public void calculateInterest(int amount) throws NegativeBalanceException {

        if(amount < minBalance) {

            throw new NegativeBalanceException("Must have minimum balance.....");

        }

        else {

        Double SI= (amount*1.5*1.8)/100;

        System.out.println("SI : "+SI);

        System.out.println("Amount : "+amount);

        }

    }

    @Override

    public String toString() {

        return "Account Type: " + accType + ", Account Number: " + accNumber;

    }

    public void display() {

        System.out.println("accType : "+accType);

        System.out.println("accNumber : "+accNumber);

    }


}




package assigment10;


public class Customer {

  private String name;

  private int id;

  private double phoneNumber;
  private String address;

  private Account account;

  public Customer(String name ,int id,double phoneNumber,String address,Account account) {

     this.name= name;

     this.address= address;

     this.id = id;

     this.phoneNumber=phoneNumber;

     this.account=account;

  }

  public void display() {

     System.out.println("name : "+name);

     System.out.println("id : "+id);

     System.out.println("phoneNumber : "+phoneNumber);

     System.out.println("address : "+address);

     System.out.println("Account details : "+account);

  }

  public static void main(String[] args) {

   Account acc = new Account("savings",56789);

   Customer cc = new Customer("ram",123,9948087,"hyd ammerpet",acc);

   cc.display();

   acc.display();



   try {

      acc.calculateInterest(2000);

   }

   catch(NegativeBalanceException e) {

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

   }
```

```
    try {
        acc.calculateInterest(500);
    }
    catch(NegativeBalanceException e) {
        System.err.println(e.getMessage());
    }




}
}
```