

CSI3023

Advanced Server-Side Programming

Winter Semester 2023 – '24

Lab Assignment - 1

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QUESTION:

PAN is a ten -digit unique alphanumeric number issued by the Income Tax Department of India. The structure of the first five characters of PAN, the first three characters represent the alphabetic series running from AAA to ZZZ and the fourth character of PAN represents the status of the PAN holder it will contain only "A", "B", "C", "E", "G", "H", "I", "K", "N" & "Q". Fifth character of PAN represents the first character of the PAN holder's Father's first name/surname in case of an individual. In case of non-individual PAN holder's fifth character represents the last character of PAN holder's name. Get the input from the user, if all the cases are valid for PAN number's first five values, then print "This might be valid PAN number" otherwise throw appropriate user defined exceptions (alphabetic series, fourth- and fifth-character input).

CODE:

```
import java.util.Scanner;
import java.util.regex.Pattern;

class InvalidPANException extends Exception {
    public InvalidPANException(String str) {
        super(str);
    }
}

public class main {
    public static int whitespace(String str) {
        int i = 0;
        for (i = 0; i < str.length(); i++) {
            if (str.charAt(i) == ' ') {
                return i;
            }
        }
        return i;
    }

    static void validate_PAN(String PAN, String a, String b, String c, String
d) throws InvalidPANException {
        String fifth_word = PAN.substring(4, 5);
        if (!(PAN.length() == 10)) {
            throw new InvalidPANException("Entered PAN number has more/less
than ten-digit unique alphanumeric number.");
        } else if (!(Pattern.matches("[A-Z]{3}", PAN.substring(0, 3)))) {
            throw new InvalidPANException("The first three characters are not
representing the alphabetic series running from AAA to ZZZ");
        } else if (!(Pattern.matches("[ABCEGHIKNQ]{1}", PAN.charAt(3) + "")))
{
```

```

        throw new InvalidPANException("The fourth character is not
representing Status of the PAN Holder\and it will contain any one of the
character like A,B,C,E,G,H,I,K,N,Q.");
    } else if (!(fifth_word.equals(a.toUpperCase()) ||
fifth_word.equals(b.toUpperCase()) || fifth_word.equals(c.toUpperCase()) ||
fifth_word.equals(d.toUpperCase())) {
        throw new InvalidPANException("The fifth character is not
representing either\nfather's firstname/lastname's first character
(Individual) (or) person's firstname/lastname's last character (Non-
Individual).");
    } else {
        System.out.println("This might be a valid PAN number.");
    }
}

public static void main(String args[]) {
    Scanner sc = new Scanner(System.in);
    System.out.println("Enter the person's PAN Number to Validate: ");
    String PAN = sc.nextLine();
    System.out.println("Enter the person Name: ");
    String person = sc.nextLine();
    System.out.println("Enter the Father Name: ");
    String father = sc.nextLine();
    try {
        String father_firstname_firstchar = "" + father.charAt(0);
        String father_lastname_firstchar = "" +
father.charAt(whitespace(father) + 1);
        String person_firstname_lastchar = "" +
person.charAt(whitespace(person) - 1);
        String person_lastname_lastchar = "" +
person.charAt(person.length() - 1);

        validate_PAN(PAN, father_firstname_firstchar,
father_lastname_firstchar, person_firstname_lastchar,
person_lastname_lastchar);
    } catch (InvalidPANException e) {
        System.out.println("\nCaught the exception.");
        System.out.println("Exception occurred: " + e);
        System.out.println("");
    } finally {
        sc.close();
    }
}
}

```

OUTPUT:

CASE: 1:

Enter the person's PAN Number to Validate:

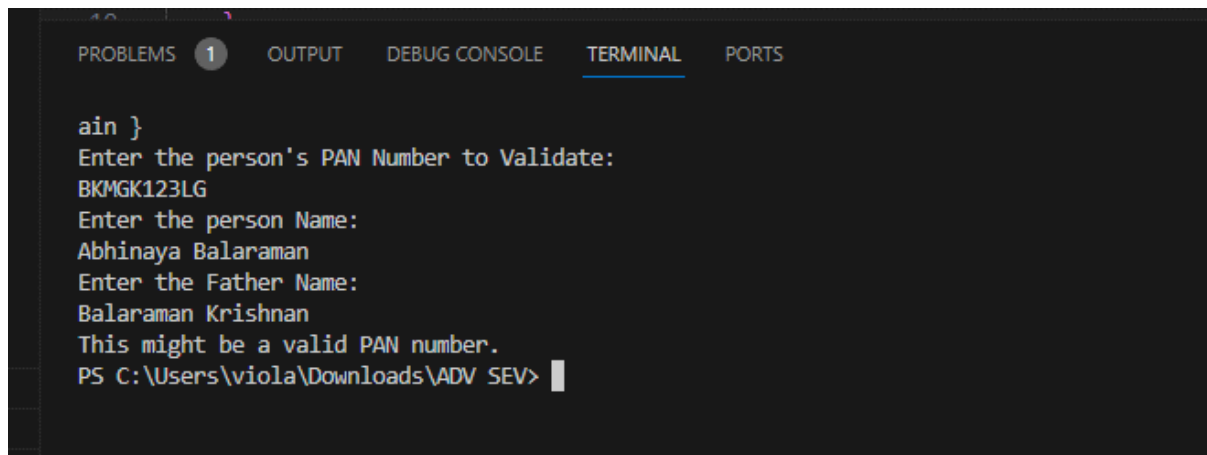
BKMGK123LG

Enter the person's name:

Abinaya Balaraman

Enter the Father Name:

Balaraman Krishnan



```
ain }
Enter the person's PAN Number to Validate:
BKMGK123LG
Enter the person Name:
Abhinaya Balaraman
Enter the Father Name:
Balaraman Krishnan
This might be a valid PAN number.
PS C:\Users\viola\Downloads\ADV SEV>
```

CASE: 2:

Enter the person's PAN Number to Validate:

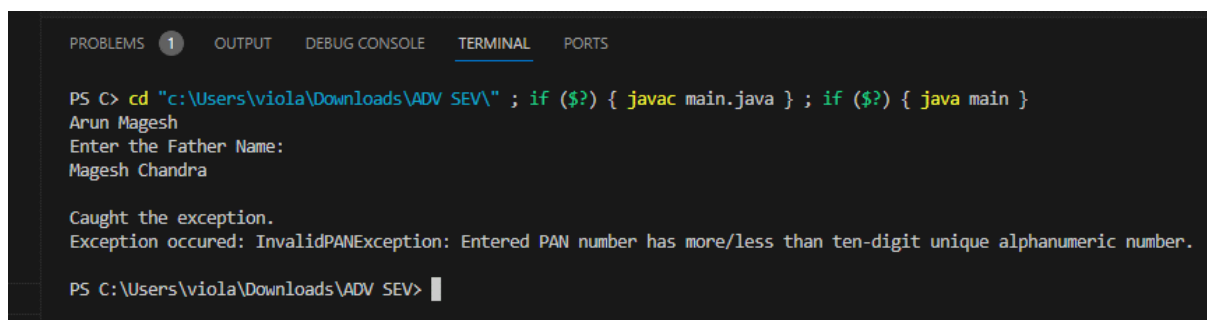
ABCQJ123NAS

Enter the person's name:

Arun Magesh

Enter the Father Name:

Magesh Chandra



```
PS C> cd "c:\Users\viola\Downloads\ADV SEV\" ; if ($?) { javac main.java } ; if ($?) { java main }
Arun Magesh
Enter the Father Name:
Magesh Chandra

Caught the exception.
Exception occurred: InvalidPANException: Entered PAN number has more/less than ten-digit unique alphanumeric number.
PS C:\Users\viola\Downloads\ADV SEV>
```

CASE: 3:

Enter the person's PAN Number to Validate:

A2BNM123HJ

Enter the person's name:

Saraga Sundar

Enter the Father Name:

Sundar Siva

```
PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Users\viola\Downloads\ADV SEV> cd "c:\Users\viola\Downloads\ADV SEV\" ; if ($?) { javac main.java } ; if ($?) { java main
}
Enter the person's PAN Number to Validate:
Enter the Father Name:
Sundar Siva

Caught the exception.
Exception occurred: InvalidPANException: The first three characters are not representing the alphabetic series running from AAA t
o ZZZ

PS C:\Users\viola\Downloads\ADV SEV> |
```

CASE: 4:

Enter the person's PAN Number to Validate:

ZZZYK990JK

Enter the person's name:

Ammu Anu

Enter the Father Name:

Anu Cutu

```
are not representing the alphabetic series running from AAA to ZZZ

PS C> cd "c:\Users\viola\Downloads\ADV SEV\" ; if ($?) { javac main.java } ; if ($?) { java main }
Enter the person's PAN Number to Validate:

Caught the exception.
Exception occurred: InvalidPANException: The fourth character is not representing Status of the PAN Holder
and it will contain any one of the character like A,B,C,E,G,H,I,K,N,Q.

PS C:\Users\viola\Downloads\ADV SEV> |
```

CASE: 5:

Enter the person's PAN Number to Validate:

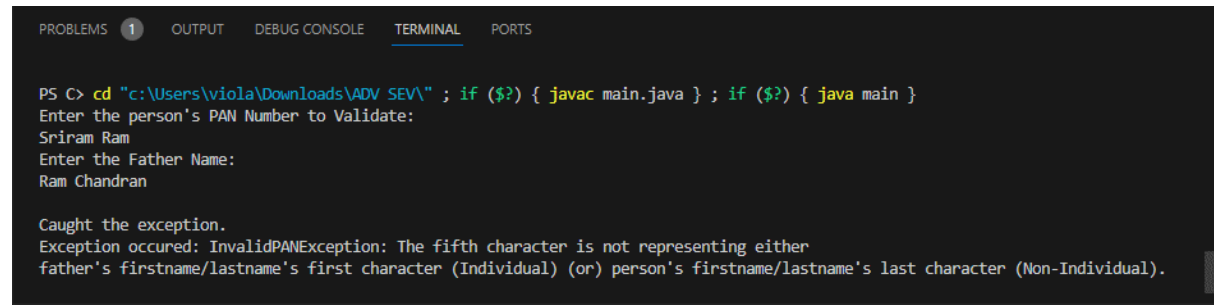
NAPNP671EY

Enter the person's name:

Sriram Ram

Enter the Father Name:

Ram Chandran

A screenshot of a Java IDE's terminal window. The terminal has tabs for PROBLEMS (1), OUTPUT, DEBUG CONSOLE, TERMINAL (selected), and PORTS. The command prompt shows the user navigating to a directory and running a Java program. The program prompts for a PAN number and a name, which are entered as 'NAPNP671EY' and 'Sriram Ram' respectively. It then prompts for a father's name, which is entered as 'Ram Chandran'. The program then throws an exception: 'InvalidPANException: The fifth character is not representing either father's firstname/lastname's first character (Individual) (or) person's firstname/lastname's last character (Non-Individual)'.

```
PS C> cd "c:\Users\viola\Downloads\ADV SEV\" ; if ($?) { javac main.java } ; if ($?) { java main }
Enter the person's PAN Number to Validate:
Sriram Ram
Enter the Father Name:
Ram Chandran

Caught the exception.
Exception occurred: InvalidPANException: The fifth character is not representing either
father's firstname/lastname's first character (Individual) (or) person's firstname/lastname's last character (Non-Individual).
```