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Assignment No-12

Title :- Template & Exception handling in java.

Problem statement :- Write a program on template an exception handling in java. in this assignment multiple template & to be designed as a pattern & take pattern to be used to take desicions.

Objective :-

i) To understand the concept of template & exception handling in java.

ii) To understand how multiple template are to be designed as a pattern.

Theory :-

Template :- Template are the foundation of generic programming which involves writing code in a way that is independant of any particular type.

A template is a blue print or formula for creating a generic class or fn.

The library contains like iterator & algorithms e.g.. generic programming & have been developed using template concept.

generic method :-

you can write a single generic method declaration that can be called with argument of different type.

e.g. :-

```
class test
  {
  static <T> void display (T ele)
    {
     system.out.println( ele.getclass().
                         getName()+"=" +el
     }
   public static void main(string[] a)
     {

       display(11);
        display("yellow");
      }
}
```

Exception handling :-

The exception handling in Java is one of the poweeful mechanism to handle the Runtime evee so that normal flow of the application can be maintained.

Types :-

1.) checked Exception
2) unchecked Exception
3) error.

• Keywords used in exception handling :-

i) Try :-

It is used to identify the exception on the block which cause exception must be included in try block.

ii) catch :-

To handle the concurrent exception

iii) Throw :-

It is used the throw the exception explicitely.

iv) Throws :-

It is used to with method. signature to throw exception.

v) Finally :-

To close different connection. Java finally block contain rest of code.

Syntax :-

```
    try
     {
        // statements
        // throw keyword
     }
   catch (exception e)
       {
        statement
       }
   finally
       {
      // Rest code
       }
```

Algorithm -

step 1.) Define one class Stack as abstract

Step 2:) Declare three abstract methods push(), pop(), top()

step 3.) Define one methed function() which will call all these method based on user's choice.

step 4.) (a) Define class Instack which extends Stack class

(b) Implement all abstract methods.

(c) put all the required Runtime exception in try block

(d) catch block to catch exception if caused.

Step 5:) ⓐ Define a class charStack which extends stack class
ⓑ Implemant all abstract class
ⓒ Create RuntimeException in try block
ⓓ catch block if exception occurs.

Step 6:) Define stackTemp
Step 7:) Create object & stackTemp of type IntStack.
Step 8:) call function()
Step 9:) Create object of stack of type charStack
Step 10:) call function()
Step 11:) stop.

Conclusion:-

template provide blueprint for class implementation & exception handling is used to handle runtime error.

Thus, we have learnt the concept of template & exception handling.