**Template: Study Material**

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| *Insert the details within the < quotes >*<CO>: <22412>: <Java Programming>: <Exception >: <LO2b>: <Study Material> |
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| Key words**Exception, ,** | Learning Objective:Students should understand concept of what is error and its type | Diagram/ Picture |
| Key Questions**What is Error?** **What is compile time error?****What is run time error?** | Concept Map |
| Explanation of Concept* Errors are mistakes that can make program go wrong.
* Error may be logical or may be typing mistake.
* An error may produce an incorrect output or
* Error terminate the execution of program abruptly or
* Error may cause the system to be crash.
* Exception is an abnormal condition that arises when executing a program.

**Compile Time Error*** **All syntax errors will be detected and displayed by java compiler and therefore these errors are known as compile time errors. The most of common problems are:**

* + **Missing semicolon**
	+ **Missing (or mismatch of) bracket in classes & methods**
	+ **Misspelling of identifiers & keywords**
	+ **Missing double quotes in string**
	+ **Use of undeclared variables.**
	+ **Bad references to objects.**

**Run Time Error****Sometimes a program may compile successfully creating the .class file but may not run properly. Such programs may produce wrong results due to wrong logic or may terminate due to errors such as stack overflow. When such errors are encountered java typically generates an error message and aborts the program. The most common run-time errors are:** * **Dividing an integer by zero**
* **Accessing an element that is out of bounds of an array**
* **Trying to store value into an array of an incompatible class or type Passing parameter that is not in a valid range.**
 | Key Definitions/ FormulasErrors are mistakes that can make program go wrong.  |
| Solved word Problem**Write a program to demonstrate compile time error.****Example 1: Misspelled variable name or method names** **class MisspelledVar {** **public static void main(String args[])** **{** **int a = 40, b = 60;** **// Declared variable Sum with Capital S** **int Sum = a + b;** **// Trying to call variable Sum** **// with a small s ie. sum** **System.out.println(** **"Sum of variables is "****+ sum);** **}** **}** **Write a program to demonstrate runtime error?**class DivByZero {     public static void main(String args[])     {         int var1 = 15;         int var2 = 5;         int var3 = 0;         int ans1 = var1 / var2;          int ans2 = var1 / var3; System.out.println( "Division of va1"            + " by var2 is: "   + ans1);         System.out.println(  "Division of va1"  + " by var3 is: "    + ans2);     } } |
| Application of Concept/ Examples in real lifeThe real life example of error is used when the frequency of occurrence of an error cannot be predicted. | Link to YouTube/ OER/ video |
| Key Take away from this LO1b: Students should understand concept of what is error and its type |