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**BANGLADESH UNIVERSITY OF
BUSINESS AND TECHNOLOGY**

CT 2

Course Code: CSE 331

Course Title: Advanced Programming

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(Assignment - 2)

Soln: A java exception is an object that describes an exceptional (that is, error) condition that has occurred in a piece of code. Some various exceptional conditions are given below:

1) Arithmetic exception: If we have a null value in any variable, performing any operation on the variable throws a `NullPointerException`.

Ex: `String s = null;`

`System.out.println(s.length());` // Null pointer exception.

Catch the exception, inform user of the attempt to divide by zero.

2) Array Index Out of bounds exception: If we insert any value in the wrong index, it would result in `ArrayIndexOutOfBoundsException`.

Ex: `int a[] = new int [5];`

`a[10] = 50;` // `ArrayIndexOutOfBoundsException`.

For this user have to catch the exception. ~~The~~ Print an error message telling the user what index was being referenced incorrectly and exit the program in a controlled manner.

3) `NumberFormatException` occurs: The wrong formatting of any value may occur. `NumberFormatException`. Suppose a string value that has characters, converting this variable to into digit will occur. `NumberFormatException`.
Ex: `String = "abc"; int i = Integer.parseInt(s);`
Catch the exception and either cast it to the proper type if that can be determined. Or print an error message indicating what the number format problem was and exit the program.

4) Invalid Input: catch the exception and inform the user that the input cannot be converted to the proper type.

* Java exception handling is managed via five keywords: `try`, `catch`, `throw`, `throws` and `finally`. Briefly, how they work.

Program statements that one want to monitor for exceptions are contained within a `try` block. If an exception occurs within the `try` block, it is thrown. Programmers code can catch this exception (using `catch`) and handle it in some rational manner.

There are some build in exceptions also:

- 1) `ClassNotFoundException`
- 2) `InterruptedException`
- 3) `RuntimeException` etc.