

# Characteristics of Exception handling

(Unit-5)

1) For a throw stmt, there must be a catch block w/ matching data type.

• If a catch block w/ match<sup>g</sup> data type is <sup>not</sup> found then APT will occur

APT = abnormal  
Prog termination

eg try

```
    {  
        if (a == 0)  
            throw 100;  
        cout << a/5;  
    }  
    catch (int x)  
    {  
        cout << "err handled";  
    }  
}
```

• APT will occur bcoz int ex is thrown (throw 100) but catch block is of char type.

• No matching type is found so APT will occur.

2) For a throw stmt, if there are multiple catch blocks then, the first matching catch block will be run.

eg try  
    {  
        if (a == 0)  
            throw 100;  
    }  
    catch (int x) // 1<sup>st</sup> matching catch block will be run  
    {  
        cout << "en handled";  
    }  
    catch (int y)  
    {  
        cout << "en handled - 2"; // This is useless.  
    } // This is never run.

• So, ideally there should be a single catch block for each type.

3) There is no implicit type conversion  
• So int will not be converted to float or char etc.

eg try  
    {  
        throw 5; // int value is thrown  
    }  
    catch (float x) // float can't catch int value  
    {  
    }  
    catch (char x) // char can't catch int value.  
    {  
    }  
}

• O/P:- APT will occur as no matching catch block is found.

45) what will happen, if there is no catch block after try?

A) Compiler error.  
• Catch block must be written after try.

50) what will happen, if is no throw stmt inside try?

A) int main()

{  
try

{  
cout << a/5;

}  
catch (int x)

{  
=  
=  
=  
}

- The prog will run.
- No ex will be thrown.
- Catch block will never run

Q6) what will happen if you write a throw stmt w/o try catch?

A int main()  
{  
    throw 100;  
}

- The prog will run. There will be no compiler err.
- throw stmt forcefully throws an ex.
- But there is no catch block to handle that exc.
- when an ex is not handled APT will occur.

7Q) what will happen when no matching catch block is found for an ex?

A) APT

- If there is no catch block, then unhandled ex will cause APT.

8) "Catch all" block  
catch(...)

- A catch all block stmt is a catch block with 3 dots / ellipsis
- This catch block can handle, all types of ex.

eg try  
 {  
 throw 100;  
 throw 'a';  
 throw 100.5;  
 }  
 catch (int x)  
 {  
 }  
 catch (...)  
 {  
 }  
 }

it will be handled by 1st catch block.

// There 2 can be handled by catch(...)  
 "Catch all" block.

Note :- Order of "catch all" blocks is important  
 • When using a "catch all" block, it must be placed at last. o/w it will handle all the ex.

eg try  
 {  
 throw 100;  
 throw 'a';  
 throw 100.5;  
 }  
 catch (...)  
 {  
 }  
 catch (int x)  
 {  
 }  
 catch (float x)  
 {  
 }  
 }

All ex will be handled by "catch all" bcoz it is the 1<sup>st</sup> catch block.

// these blocks r now useless.

(5)



9) class obj can also be thrown

```
eg try
{
    student obj;
    throw obj;
}
catch (student obj)
{
    //
}
```

• A class obj may contain an info which is handled by the catch block.

10) A base class catches block can catch ex. of all its derived class obj.

• So derived class must be placed at last.

```
eg try
{
    throw base_obj;
    throw d1_obj;
    throw d2_obj;
}
catch (base_obj - base);
catch (d1_obj - d1);
catch (d2_obj - d2);
```

// it will catch all the ex

// these block never run

⑥