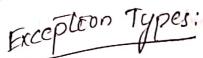
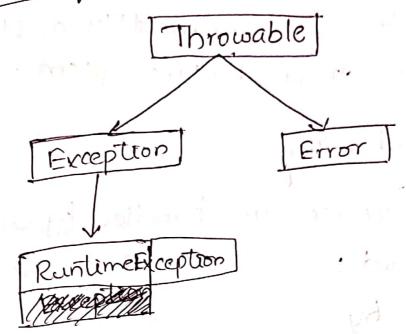
Livite a c-program to read 2 integer value from consoul (or) Runtime. import java util scanner, Class Haths Demo ş Public static voidmain (string arl) z Scanner Sc=new Scanner(System:in) System.out.pantin ("Enter a value"); ant assc. nextInt(); System-out-pantln ("Enterb value"); int b=sc.nentInt(); int c=a/b; System-out-println ("Division alb is"+c); 3

Exception: The run time error in a Program is called exception.

enception is an event that interrupts the flow of enecution (or) program.





- (1) Throwable: it is a cobase class for all the Exception type Bases.
- (2) The Execption Types are classified in to 2 ways.
 - 1. Exception

- Exportation to stald, incorphandle 1. Exception is used to rectify the errors in user programplike IloException.
 - 3. Runtime Exception: It is a derived class for Exception class and handles the errors
- in runtime are automatically defined by the programs.

s. Exror class is used to definancle the errors in a environment like a stack overflow or java runtime Systems.

Exception handling: -

Exceptions are handled by usings keywords:

- 1. bry
- core catch word a with sold our mi
 - 3. throw was a mut accom
- c. u. throws
 - 5. finally.

typlock
et contains block of statements (or) program
statements that you want to monitor for
an Exception.

if an Exceptionenasts sensitive catch

(2) Catch Block,

and handle in a manner sational manner

(3) throw: to throw an Exception mannually by using throw keyword. (4) Throws: It is an enception from used to throws clause any method. and rung exception.

by using throws clause (8) finally contains Block of Statemenentier) code « it is absolutely must be executed. Syntax's: District of the morning A Ablock of programs atch & l'enecption handler for Exception catch 11 --finally in ach in the dome in I delet block of code to be enecuted after try block ends.

```
Example:
    import java celel. *>
    class HathDemo
       public static voidmain (string al ))
scanner sc=new scanner(system.in
         g
           system out println ("Enter a value").
            int asscinentiat();
            System out pantla ("Enter b value")
            int , b=sc.nentalint();
             int c-alb;
      System. out println ("Do not give
                            dividend as zero"
                   (Division alb is: +c);
         Catch (Arthematic Exception ae)
    System.out.println ("Do not give divident
                      as zero");
         7
```

```
catch (Input-Missmotch Exception ie)
         System out-println ("please enter jonteger
                                 value");
    finally
      System-out-printin ("Fihally block is enecuted");
     3
   8
2019/19
Exten (o) create your outro excels:x3
  Write a java program to demonstrate the
 Exception handling boots i mos 1
                the defived class is colf
 Source code!
                incoping paint ti having & constitution
  emport
          java· util·*;
   class
           Exception Demo
      Public stalic void main (stung ar[?)
      String Punc ] = 18"C", "c++", "java", "C++",
              for (Int 1=0) (<10, 1++)
```

```
System-out-println (lan (i));
    Z
     catch (Index Out Of Bound Exception ie)
         System out println ("There is no index
                      in array");
        3
?. User define enception (or) create your own enception
           - class is entends with Enception class
   then.
          the
                derived class is called user defined
    Exception class. It having a constructors: They are:
      St Exception )
         Exception (string misg)
         many methods but ]
Mainly Two Methods
      String tostring ()
       String to get reessage ()
```

```
user defined Exception is must be Thrown by using
- involun Ecycood
Example program: (Sout &n -1)
 class by EvenNumberException extends Exception.
   String message;
    Even Number Exception (String mig)
   public string (pstring()
       return message;
 z
class HyException
    static void even (inta) throws Even Number Exception
    1
        of (a% 2 = =0)
          System.out.phntln ("Number is :"+a);
        else
          throw new EvenNumber Exception
                       ("enter even number ....");
   3
```

```
public static voidmain (string str[])
  E
     try
        even(10);
        even (20);
        even(s);
       3
      Catch (EvenNumberException ene)
       System out printin ("Exception caught:"to.
ter used even (inta) therews Eventhousein
```

```
Write a c-program to demonstrate the exceptional
handling.
 import java, util. +;
                   The Internity
  class Exception
  ž
     public states void main (string args (?)
       string lant] = & "c", "c++" "java", "c++" "};
     g for (int 120 , 112 10 , 11+4)
       the How of execution and any subsequest
         systemout pointln (lancis);
    ine ty black inspects the if it has any of
   Catch (Index out of Bound Exception ie)
     it is should the coolie of handles to the
    System. outprintin ("There is no inden in array");
        not found then the nearest by
P
                    no or home bottons
 Throw: Raise an exception manually throw
   throwableinstance
          by default exception handler
  Example
                                 Arthemalic Exception
                     aeinew
  ArthmeticException
                                               ("msq")
         throw (ae);
```

throwable initance must be a object throwable on jub classess of throwable pre

primitive types like int, char cannot be used as enception.

we can create throwable instance in 2 ways:-

one is by using new operator
second is using a parameter in catch block when throw is find that immediately stop
the flow of enecution and any subseavuent
statements are not enecuted

The try block inspects the if it has any catch statement that match with enceptiontype * if it is found the control is transfer to the catch statement.

- * if it is not found then the nearest try block is inspected and so on --
- * if no catch block is found then it will handle by default exception handler and prints the stack trace.

```
Abrite a java program to demonstrate throw or
  rethrow
  class Throw Demo
    public static void display();
      by smill ( like observing) mile but in
       System. out println ("Welcome").
       throw new Nullpointer Exception ("NULL ref
       borten ment antiquous no siloi enceptron");
      6
                                         · arthornair
     catch invul pointer Exception ie)
         System.out printin (ie).
                      a thorne closure decept hairdle
         throw new Arthernatic Exception ("Invalid
        ands du
                      operation");
                     1/ rethrow enception.
  public static voidmain (SMng args[)
     Display ();
   3.
```

```
catch (Arthematic Exception ie) }
     system.out-println(ie);
 3
 Throws:
    type method name (parameter-list) throws exception
                                                = list
       Ilbody of method
* Throw block raise an enception from method
   Signature.
* The throw claure takes the multiple enceptions
  with comma (,)
* throws clause doesn't handle type of Frror,
  Runtime Exception or any of its sub classes.
                Windles would as I
class ThrowsDemo
  static void Display () throws ellegalAcess Exception
   5
    System.out.println ("Inside display.");
    Throw New illegalAccess Exception ("Illegal
                                         Exception");
 g
```

```
public state void main (string args[7)
    Display();
   3
   catch ( Illegal Access Exception ae)
  astrono in longly of toold put A - yell
     system out println (ae);
       Java util * inversor to instead de la
class Exception Demo
                    inspected for match.
    string dant Isque", "Cit", jai
    for (int 300, 1210; (++)
       System.out.println (lan[i]);
 catch Linder out of Bound Exception ie)
   Systemoutprinten ("There is no index in array"),
```

finally of system out println l"Anal block is executed". Mested My: - A try block is placed in another try block is called nested try. Each time the try statements enters the context of exception. Each content of enpreption is placed in stack. If the nested try block doesn't have any catch handler for particular exception then the nent my statement catch hardler are inspected for match. If there is no match found then default exception handler will handle import java. util. *; Class Haths Demo s Um (swing argitis)

After the CLO1: Understand funda...

```
Scanner sc=ncw Scanner (system in);
     System.out.println ("enter a value");
       int a = sc. nentinel);
      system out println ("enter b value");
          int b = sc. next int ();
            int c=a/b;
       System.out.println ("Division of allo "+c);
   String lan [] = {"c", "c++", "java"};
     for (înt. 9:0; ic10; i++)
      System.out.println(lanci);
Catch linderout of Bounds Exception ie)
  System-out printin l''there es no index in array"),
 þ
catch (Arithmetic Exception ae)
 system. out printin l'Do not give dividend as rero";
3
```

```
Catch (Input Mismatch Exception ae)
   system out printin ("please enter only integer"),
finally
  system-outprintln l'final block is enecuted"),
```

Reeption Types: 1. Build in enception J. User defined enperption 1. Build in enception Exception Arthematic Exception Anthematic error such as dividendas tero Array Inder Out of Bounds Array inder is out of bounds. Megal Argument Exception Megal argument used to invoke a method llegal state Exception Environment or application is in incorrect state Indenout of Bounds Exception Some type of index is out of bounds

Mull pointer Exception

Invaled we of null

reference

User defined freeplant:

userdefened Exceptions are used create our own enception. A class is entend with exception class then the defined class is called user defined exception class.

It having two constructors

(i) exception()

(ii) exception (string mig)

methods are string to string () a real wind ibons (Ring Aget Mersage ()

User defined enceptions must be thrown by using throw a keyword.

Example: Immorrison!

class Even Number Exception entenels exception

state temption

10116 Bounditerritur

& String mersage;

Even Number Exception (string mig)

message = meg;

public string to stringe)
of return message;

```
class exception
  static void even (inta) throws even Number Grepton
     if (a%2 ==0)
       system.out.println("Number is:"+a);
      else
       throw new Even Number Exception ("enter new
                                       number..."),
  p
  public static void main (string al7)
       try
          even (10);
           even (20);
            even(s);
         to
       catch (Even Number Exception ene)
        System.out.psintin ("exception Caught: "tene).
```

chief Exception:

An enception describes the cause of another enception is called chained Exception.

For Ex;

-A method Throws arthemathic expression

because of divide by zero. However the actual cause of the problem was Ilo error occur.

Finally, Here Ilo enception causes (or) dimatches describes the cause of arthemathic enceptions

et is having two constructors and

methods two

constructors: -

- (i) (Throwable, (Throwable cause Exc)
- Throwable (String misg, Throwable Cause Exc)

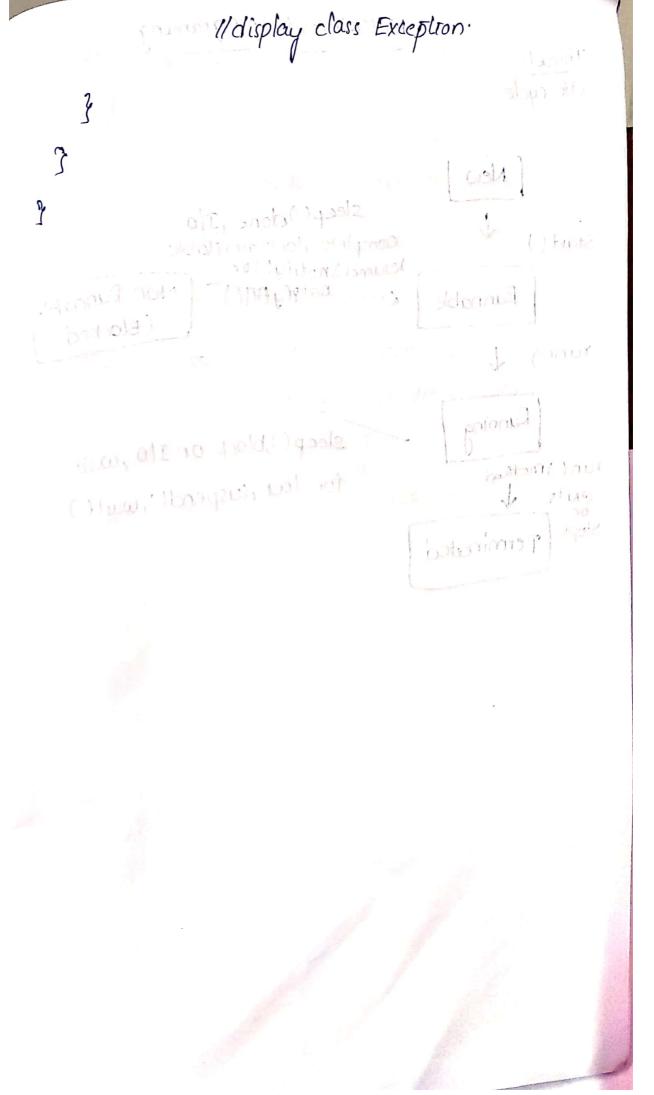
:9 writt

Methods!

Throwable init Cause (Throwable cause Exc) Throwable getcause () og 1 1011

of (other tapened allowed to it makes religion to love enception

```
Examples
  11 Demonstrate enception chaining
                          batton so mi
    class chain ExcDemo
      Static void desplay
       Null Bointer Exception e= new Null pointer Excepts,
                   will mildorg ("top layer");
sont paris (con course con enception
       e. initcause (new Arthematic Expression ("cause"))
       bonc redouchers out add a cause is
                                 thoo methods
      throw e;
   public static void main (string args[])
   10,000 te (sting mig. Throwable cause
      try
         Display ():
       catch (Null pointer Exception e)
         System.out println ("caught:"+e);
                      "display top level enception
        System out println (" original cause: "+e-getcour
```



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