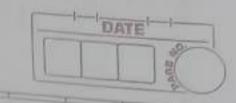
	DATE
	Exception handling & multithreading
*	
	Exception Exception
	- betect during compilation - detect during execution
	ex:-
	BufferPeader br = new BufferReader (Inputstreamproder (System.in)
	br. readline();
	- Exception is class in java.
	- The exception that are checked at compilation time by the java compilers are called checked exceptions.
<b>(2)</b>	- The exception that are checked by JVM are called unchecked exception.
	checked exception:
	Public static void main (String args (1)) throws  Lo Exception
	Buffer Reader Hor = new Buffer Reader (Inpulstone
	Reacter (System in)
	br. rreadline():

Unchecked exception ex: divide by zero: int a=100.b=0.c; c = a/b; jova. lang Throwable Exception ELLOR checked unchecked At compiletime At execution time Syntax: troy Carch ( JoException e) object , ,, exception can be display with e prints ack trace 1); ex: Class Exp 4 public static void main (String args[]) tou 5 'nt ance 410,123;

```
S.o.p ( open Ales");
         int n= args. length();
         5.0.p ("n="+n);
         int a = 10/n;
         5.0.p ("a=" +a);
intc=.aee(s);
   * catch (Anithmetic Exception ae)
             5.0.p( ae): // ae.printstacktrace();
      finally // teyword use to end the main() if
theire is any error caught/or not-
exception
         S.o.p ("Class files");
            The filled was a world
  ratch ( Array Index Out of Bound (16)
        Calculation of analysis to the
       5.0.p (ab);
  mort
  throws- use to throw exptre exception explicitly outside.
          the program
1 Throws-clause -
  -If the programmer is not handling nuntime
   exception java compiler may not give only error
    related to runtime exception.
  But the rule is that the programmer should
   handled checked exception.
```

	-In this case the programmer can use
	throws clause to throw the exception
	throws clause to throw the exception explicitly ex:-
	Throw dause-
4	-Throw clause is used in the try block for
	transferring the control to catch block.
	ex:-
	class sample
	4
	public static void demon)
	4
	try h
	5.0.0 ( "tru block").
	5.0.p ( "try block"); throw new Nullpointer Exception (
	"Exception data");
	y
	Catch ( NullPointer Exception ne)
	4
	6.0.p(ne);
	9
	Y
	class Throw demo
	4
	2 2 2 2
	P.S. V.M()
	Some demo(2) // Function call by
100	aloccos perause
0	demo function is steetic.
1	



- Throw clause is use in sommore testing to test whether program is handling all the exceptions according to the programmer.

## \* Built in exceptions:

Checked

unchecked

- 1) Unchecked exception-
  - detected during runtime.
  - <u>OAnithmetic Exception</u>
  - @ Array Index Out Of Bourd
  - 3) Array Store Exception
  - 9 Class Cast Exception
  - 9 Enum constant Not present Exception
  - @ Illesal Argument Exception.
  - A Illegal Monitor Stap Exception. .
  - (8) Inegaistate Exception
  - 1 Negative Array Size Exception
  - 1 Nuipointer Exception.
  - 10 Number Format Exception
  - 1 Security Exception:
  - 13 String Index out of Bound Exception.
  - 13 Type Notpresent Exception.
  - 4 Unsupported Operation Exception.

ex:

NULL pointers

class nullPointer

Public Static Void main (

try 4 ?

se

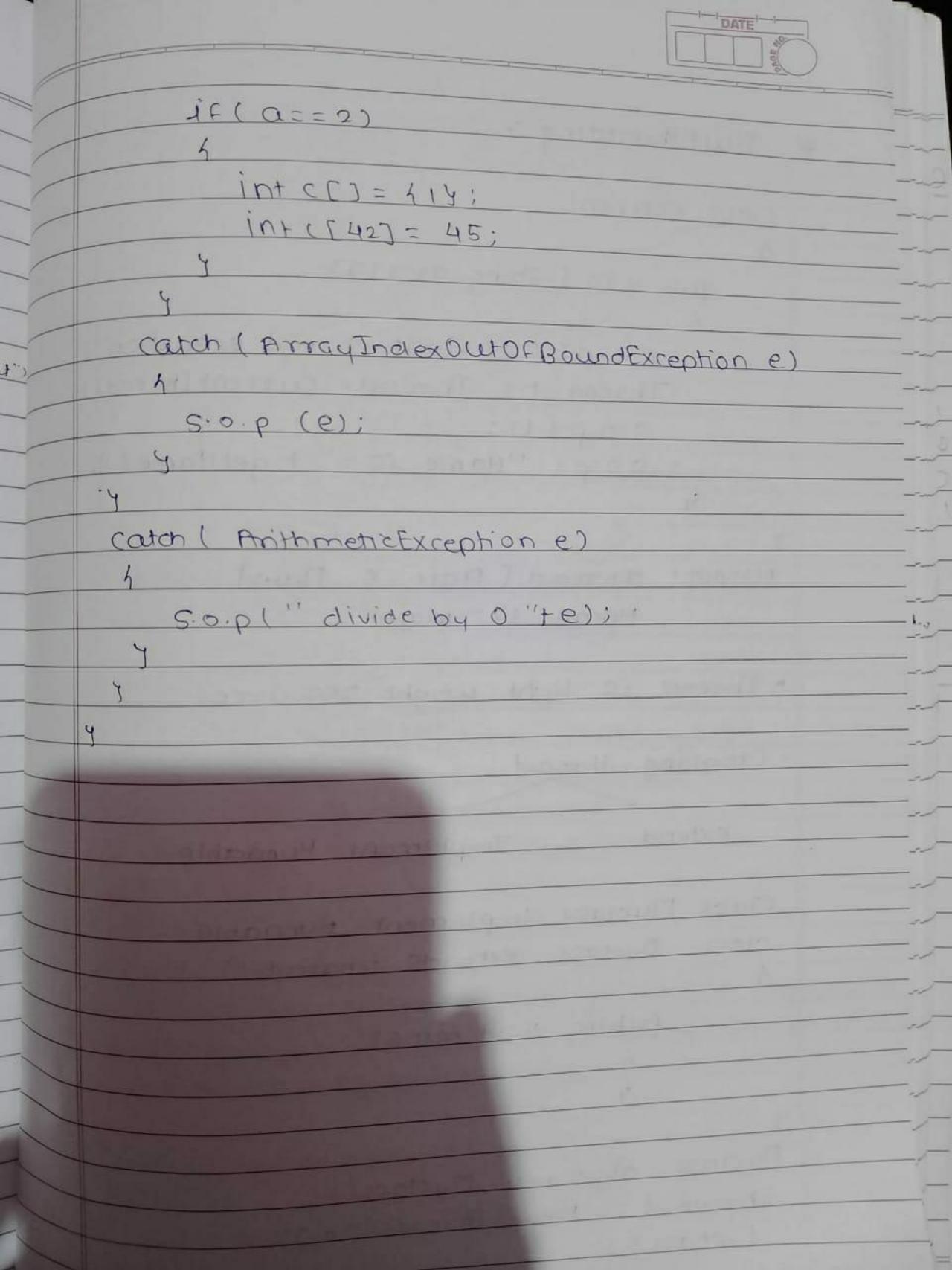
dicitly.

nc.

```
String a= nuli
          5.0.p (a.chastAt (0));
         Catch ( MulPointer Exception ne)
         y string is Mull");
 @ Class String Index
     D. S. N. M ( )
        trys
           string a = "Hello";
            char (= a.charAt(10));
             S.O. P(C);
        Catch (String Index Out Of Bound e)
           S.o.pl "string out of bound");
3
  class Hoformat
         public static void main()
            toy 5
                 Int no= Threger parse Int ("No");
```

```
5.0.p(no);
        catch ( Numberformat Exception e)
             S. O.p ("NO Format Exception");
* User defined exception :-
  class My Exception extends Exception
         Private Static int accnos3 = 4 1001,1002, 1.
                                1003, 1004, 10057;
        Private static string name [] = 1 "abc", "x42",
                     "par", "Imp", "sta"y;
        Private static double bal [] = {1000.0.2
                2000.05,3000.06,4000.01,5000.084
        My Exception ()
         My Exception (str)
              super (str);
  class
    Public Static void main ( string args ())
      try 5
```

```
S. O. pl "Accoo: Hame bal");
      for(i=0: i(5: 1++)
          S. O.P (accooli) + name(i) + balli);
       if ( bal (1) < 1000)
      MyException me= new MyException ("less amount
         throw me;
 Catch ( My Exception me)
       me. printstraction Trace ();
Mested try :-
class NestTry 1
     public static void main ( String args [])
     tray 5
          my
               int a = args. length:
              int b = 42/a;
               S. D. p (" a = " + a);
             try 4
                 if ( a = = 1)
                   a = a | a - a;
```



```
* Multithreading:
  Class current
      p.s. v.m (String aress ())
         S. O. p (" current thread execution");
        Thread t= Thread. (current Thread();
         S.O.P (t);
        5.0.p ( "Mame is =" + get Mame ());
 OUTPUT! Thread [Main, 5, Main]
          Mame 18 = main
· Thread is light weight resource
· Creating thread
    extend Implement Punnable
 Class Myclass Implement Runnable
 class Myclass extends Thread
        public void mun()
My class obj = new My class ();
Thread t= new Thread (Obj);
 t-start ();
```

```
class Mythread extends Thread
       public void run()
          FOT ( intizo; i <1000; i++)
             S. O. P (1);
           boolean stop = faise;
             if (stop == bue)
            return;
 class Demo
    p.s. v.m()
      MyThread Obj = new MyThread ();
      Thread t=new Thread (Obj);
           t-start();
Assignment:
White a java program that currently implements
producer, consumer problem using concept of
interthread communication.
class communicate
     public static void main ( string (100gs)
```

```
Produces objl= new Produces ();
         Consumer obja new consumer ();
        Thread to new Thread Cobjil;
         Thred La = new Thread Cobjec:
           ta. Stort();
           ta-start();
Class Producer extends Thread
          String Buffer sb:
          boolean dataprodoveq = faise;
          Produces ()
             Sh = new String Buffer ();
         public void rune
          Synchronised (Sb) 4
           FOR ( IN) 1=1; 1<=10; 1++)
               try 5
                  sb. cuppend (i+":");
                  Thread . Sleep (100);
                   S.O.P ("Appending");
              y catch ( Exception e)
```

DAYE

DAYE

class Consumer extends Thread

Consumer (Broducer prod):

this prod = prod;

Public void runco

5 synchronized prodisb) 5

while (1= prod. dataproctover)
Thread. sleep (100);

4 carch (Exception e)

2.0.6 (brod .2p);

sends a notification to a vaiting thread.

that object is available.

- Obj. notifyall() is wesful to send notification to our waiting threads at once that object is ovallable.

for the object till it receives a notification from notify thethod or notify all method.



\* Thread priorities 3- range: 0 to 10 5-default priority
min max

- Priority assigned to thread is done by JVM permin

- Variable use to find priority:
public Static int Min-priority:

MAX-priority:

public final serpnosity (Int priority NO) // Set Priority to thread.

public final intgetpriority()

Li. getpriority() 11 by default we get 5.