- Java Programming. K. Meghan 19232112 Assignment -02 1. Inheritance. Inherstance means creating new classes based on existing ones. Inheritante in Java is a key feature of object- oriented Programming that allows one class to inherit the Properties (fields) and behaviours (Methods) of another Types of InGertance. 1. Single Inheritance: A class Puherits troy are super class class A -> class B (child) 2. Multilevel inherstance: A class is derived from a class which is also derived from another class super class GX 30 Parent [class B] subclass 1 ex 3 child [classo] subclasse cx ; granddold 3, Hérrarchical Inheritances- Multiple classes inherit trong Single superclass Base class [class] classo

4. Multiple Inherstance: A scenario whele a class can inherst properties and methods from more than one super class . SUPERCLANZ TSUbclay 5. Hybrid Inheritance: It is a combination of two or more types of inheritance Grand father -> Single Inheritance -> Hierarchical Inherstource > Hybrid Inheritance Single Inherstance. Class AZ int a; void displayA (1 { system.out. Println("a="+a); Tentrenitances - Multiple clarkes class Bextends A { Gold display B112 ystem, out, println ("b="+b); Public class single inheritance Grample 2 Public static Vollmain (stringe) args) { Inside display A Inside display B Inside display

```
Heirarchical Inherstance
         Clays Animal [
              World eat () {
             system out, Println (This animal eats food");
      3
      class Dog extends Animali
                                     class of several as
           void bartiere
           System. out. Println ("The dog barks").
    3
      clays cont extends Awmal &
                                      clan e extendu es
              void meowers
             system. out. Muth ("The cost meouss");
      3
              Inside cliplay? ")
      Public class many
          Public static void main ( string ( ) args) &
                                        Ribble clock mounts
               Dag. dog = new Dog();
             dog , eat ();
                            copieranocus
             dog, barle (),
                                    old, eliphayno;
              caticat = new cate;
                                   obj. Hispayers
               cat, eat ();
                                   elsj - displayees;
              aut, meowers
    Bobs = new Bl);
       obj.a=20;
                                    Method for clay A
  063.6= 30;
                                exertised from interferce B
    Obj. display A ();
                               ruellised from Enterfoce c.
     Obj . display B();
                                  algorith Intervious.
                                    1248 Grand Jakes E
Output: a=20
              System out must be (" He is grainstation"
```

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Multilevel Inheritance.
             system out, Println ("Inside display A");
         Clay A 2
          Public void display A. (12
                                     Dog esterall rendents
                                           void prit 198
        class is extends A {
              Systemiont, Println C"Inside d'splay B");
           Public void display BC12
                                  all cont extends paramal a
        class c extends B2
                                       2014 MOONED
             Reldie void display a C12 Ment wo worker
            System. out, Printly ("Inside displayic");
                                            ublic class makes
    Public class main 2
         Public static void man (strings) angs) ?
                               Public Static Votel work !
         C 065' = new (1);
                                      dog. cat ();
         obj , display A C;
                                     dury boots (s.
         Obj. LisplayBC);
                              cate cate a new cates
         obj · displaye ();
                                   (at , lat ()
                                   Cot , menones
   Method Bay clay A
   Method from interface B
                                            (05 = 10 /do
   Method hom interfacec.
                                            JOE - 4 , 190
Hybrid Inheritance.
                                         olal display ATJ
                                         ( Takesday 190
class Grand father E
  Public Void shown () 2
System. out. Println ("He is grandfather").
```

```
class father extends Grandfather &
          Public void showf (12
         System. out. Drintln ("He is father");
      class son extends father &
           Rubble vold shows ere
          systemout. Println (" He is son"):
   Public clays Daughter entends father &
        Relieve void show DUR
       Systemate Println ("she is daughter"),
  3
     Public static void main (string args ()) {
           son obj = new son ();
           Obi shows (1:
           061 . Slow F():
           Obi · slow G().
           Daugater Obj 2 = new Daugater ();
Output The animal eats hood
       The dog barker
         This arrival cats food
         The cert meous.
Multiple Inheritance
                                             PE, Pethion
                                       is gravellage
 class A &
   void method ACIS
     system.out, print /n ("Method . how class A");
 Interface B2
    void method B();
```

```
Interface CE
    Vold method (1)
 class D extends A implements B, C2
      PULLE VOICE MEHLOOD B(12
       systemious . Println ( "Method how interface B")
  Public void method (1) 2
     System. out, Printly ("Method how Interface c");
   Public class multiple In Gertance Example 2
      Public static void moin (stringer args) ?
           0 06j = new 00;
           Obj. method ACT;
           obj. method B(1)
           obj. method (1)
 4
06,8. dow D();
Obj2, show F();
065' 2-show (1)
  He is son
  He 75 father
  He is grandfather
  stor is daugther
   He ?s father
   the 33 grand father.
```

exception Handling. Expeption is an essor that occurs during the execution of program. key components of exception hounding 1. Try Block - This is where you write the code that might throw an exception. If an exception occurs, the execution of the try block stops and control is transferred to catch book. 2. Catch Block- This is where you broudle the exception, Block of code to be executed of an error occurs to try block 3. Finally Block - This is block contains code that is execu regardless of whether an exception was thrown or not. us throw statement: This is used to explicitly thrown an exception born a method or block of code 1 Try --- coutch block class mains unt divide Public static void main (string C) args)? int a= 5/0; system, out, println ("Res of code in try block"); Catch (Ax? Hunefic Expertion e) 2 system, act, printin cu Arithmetic exception >> " + e.gethussa, catch (Exception e) & systemiout println ("Exception > "+ e.get message ()); A 87thmetic Greeption > by Zero.

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o . Try .... cosch block
         Public class main &
           Public state void main (string() args) ?
            "unt arj= 2 10,20, 303;
          system out , Drivtha (acros);
         catch (Mrray Judex Outof Bounds Exception e)
       system, out printin ("Array Sudex Outof Bound Exception = 5"+ e
                                                       get mestage (1);
   ates array Index Out of Bounds Exception => Index 10 out of bound
      Br wigth 3
    Finally block.
     class massix
       Public static void main (strings) args) 2
      Put divide by zero = 5/0;
   Coatch CAyithmethic Exception e) 2
    system. out. print/4 & Arthuretic & xception =>"+e.getnessages);
 Anally 2
3 System. Out, Printin ("This is the finally block"),
    A Athenetic Exception => thy zero
  This is the finally block.
```

```
Throw Crotes
       Public classmaing
       static void check Age ("int age) throws A & ? through
      exception
      3 (age = 19) 2
      throw new Arthmetic Exception ( "you are not eligible")
      elles
      system.out. Printlnc" y ou are eligible to wee",
    Public static void main Estringes argusz
         check Age (15);
   Output: you are not eligible
    Nested try block.
     Public class Exceptest &
      Public state void main (string args[))?
   But ac) = 21,2,333
  try 2
   int 6=1/0:
 catch CExceptione ) ?
     system.out. printlnC" Exception thrown: "+e, gethusage(1).
  system. out. Println (acus):
 courch CArray Indexout of Bounds Exception es
a system. out. Println C"Enception Risowa: "+e get Message ());
```

system. out, println ("out of the block"); outputs Exception Horown: 1 by zero Exception thrown: Index u out of bounds for length 3 out of the block. exception to you are not eligible Assession to not be seen suggested to role. I'm Outputs you are not elighe Mested try block. RIBLE CLOUD EXCEPTS Public state void made ( string on Be ac 1 - 1 2 2 2 18 when out mother "Cacopin Hasser" + + , phase par Corsella properties as the reperted the part of promote exchin 60% Bless out Printip C'Encephon Rouns, +6 30 most bis