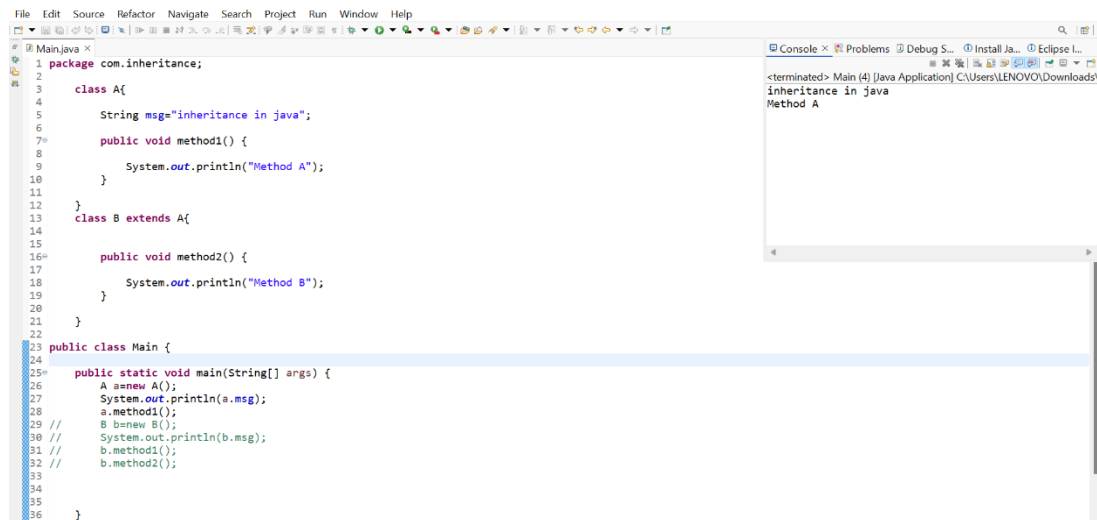1. can I access parent class properties and behaviours using parent class reference ?
   ➢ Yes, we can access parent class properties and behaviours using parent class reference. But, we can only access parent class properties not child class properties.
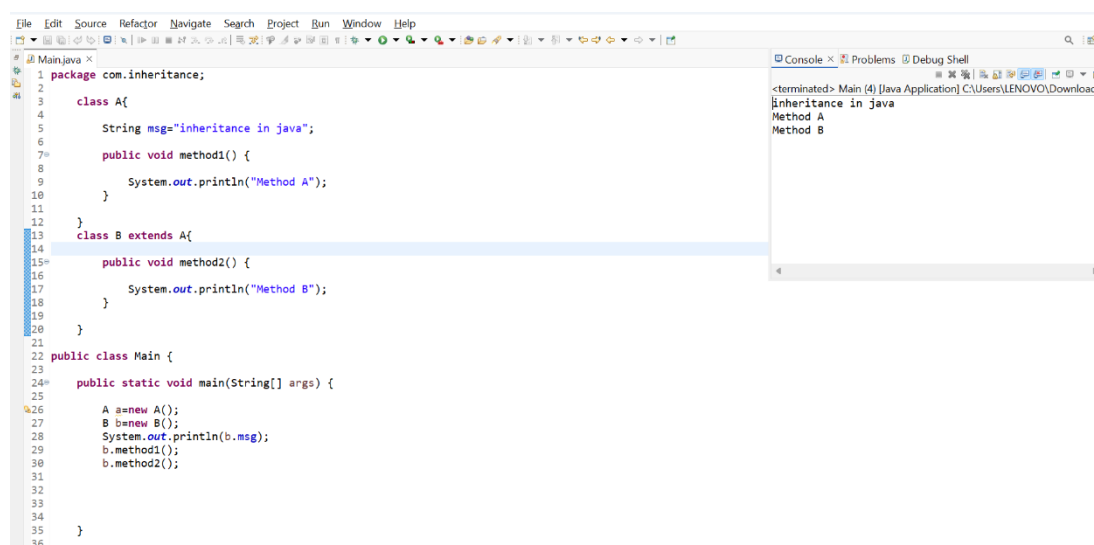

2. can I access parent class properties and behaviours using child class reference ?
   ➢ Yes, we can access parent class properties and behaviours using child class reference by using keyword extends.

3. can I access parent class private properties and behaviours using parent class reference from child class ?

   ➢ No, I can not access parent class private properties and behaviours using parent class reference from child class.

```
File  Edit  Source  Refactor  Navigate  Search  Project  Run  Window  Help

  1 package com.inheritance;
  2
  3     class A{
  4
  5         private String msg="inheritance in java";
  6
  7         public void method1() {
  8
  9             System.out.println("Method A");
 10         }
 11
 12     }
 13     class B extends A{
 14
 15
 16         public void method2() {
 17
 18             System.out.println("Method B");
 19         }
 20
 21     }
 22
 23 public class Main {
 24
 25     public static void main(String[] args) {
 26         A a=new A();
 27         B b=new B();
 28         System.out.println(a.msg);
 29
 30
 31
 32     }
 33
 34 }
 35
```

Console:
```
<terminated> Main (4) [Java Application] C:\Users\LENOVO\Downloads
Exception in thread "main" java.lang.Error: Unresol
        The field A.msg is not visible

        at com.inheritance.Main.main(Main.java:28)
```

4. can I access child class properties and behaviours using child class reference ?

> Yes , I can access child class properties and behaviours using child class reference by creating object to the child class.


```
File  Edit  Source  Refactor  Navigate  Search  Project  Run  Window  Help

  1 package com.inheritance;
  2
  3     class A{
  4
  5         String msg="inheritance in java";
  6
  7         public void method1() {
  8
  9             System.out.println("Method A");
 10         }
 11
 12     }
 13     class B extends A{
 14
 15
 16         public void method2() {
 17
 18             System.out.println("Method B");
 19         }
 20
 21     }
 22
 23 public class Main {
 24
 25     public static void main(String[] args) {
 26         B b=new B();
 27         System.out.println(b.msg);
 28         b.method1();
 29         b.method2();
 30
 31
 32     }
 33
 34 }
 35
```

Console:
```
<terminated> Main (4) [Java Application] C:\Users\LENOVO\Downloads\
inheritance in java
Method A
Method B
```

5. can I access parent class properties and behaviours using child class reference ?

> Yes , we can access parent class properties and behaviours using child class reference .

```java
package com.inheritance;

class A{

    String msg="inheritance in java";

    public void method1() {

        System.out.println("Method A");
    }

}
class B extends A{

    public void method2() {

        System.out.println("Method B");
    }

}

public class Main {

    public static void main(String[] args) {

        A a=new A();
        B b=new B();
        System.out.println(b.msg);
        b.method1();
        b.method2();



    }

}
```

Console output:
```
<terminated> Main (4) [Java Application] C:\Users\LENOVO\Downloads
inheritance in java
Method A
Method B
```

6. can I store child class object into parent class reference variable?

➢ Yes , we can store child class object into parent class reference variables. But we can not access the properties and methods of child class , it only access parent class properties and methods.

```java
package com.inheritance;

class A{

    String msg="inheritance in java";

    public void method1() {

        System.out.println("Method A");
    }

}
class B extends A{

    public void method2() {

        System.out.println("Method B");
    }

}

public class Main {

    public static void main(String[] args) {

        A a=new B();
        B b=(B) a;
        System.out.println(a.msg);
        a.method1();
        a.method2();



    }

}
```

Console output:
```
<terminated> Main (4) [Java Application] C:\Users\LENOVO\Download
Exception in thread "main" java.lang.Error: Unreso
    The method method2() is undefined for the

    at com.inheritance.Main.main(Main.java:31)
```

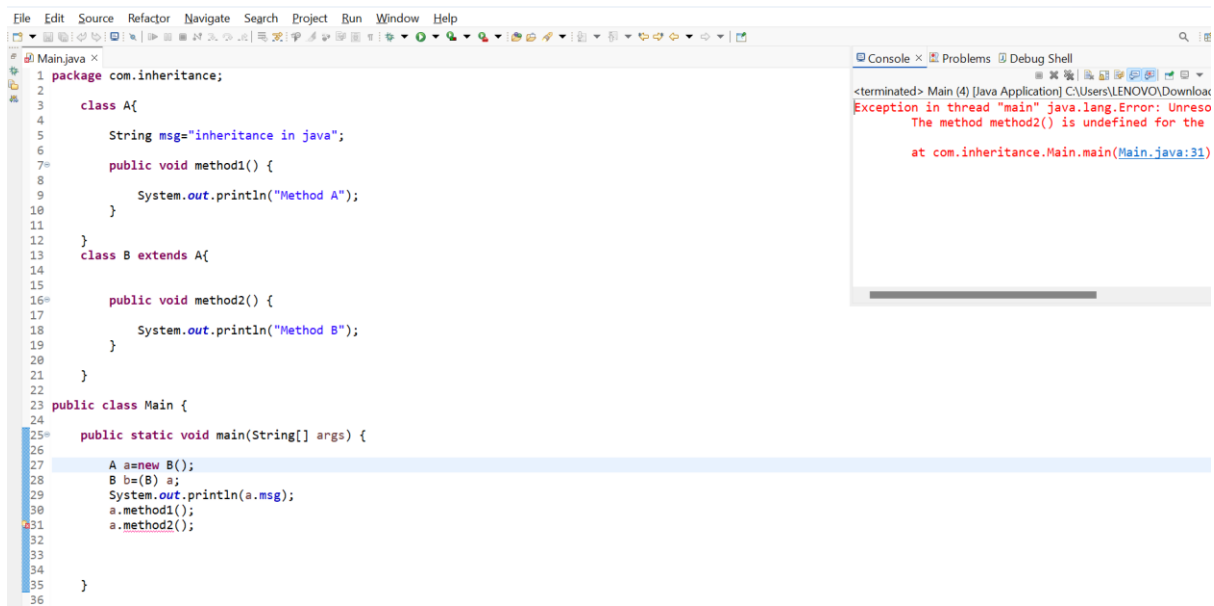**7. which keywords is use to make relation b/w classes to classes ?**

➢ The keyword which is used to make relation between classes to classes is Extends.

8. how many types of inheritance ?

➢ There are five types of inheritance:
   1. Single inheritance
   2. Mulitiple inheritance(Achieve through interfaces)
   3. Multilevel inheritance
   4. Hierarchical inheritance
   5. Hybrid inheritance(Achieve through interfaces)

9. can I access child class properties and behaviours using parent class reference ?

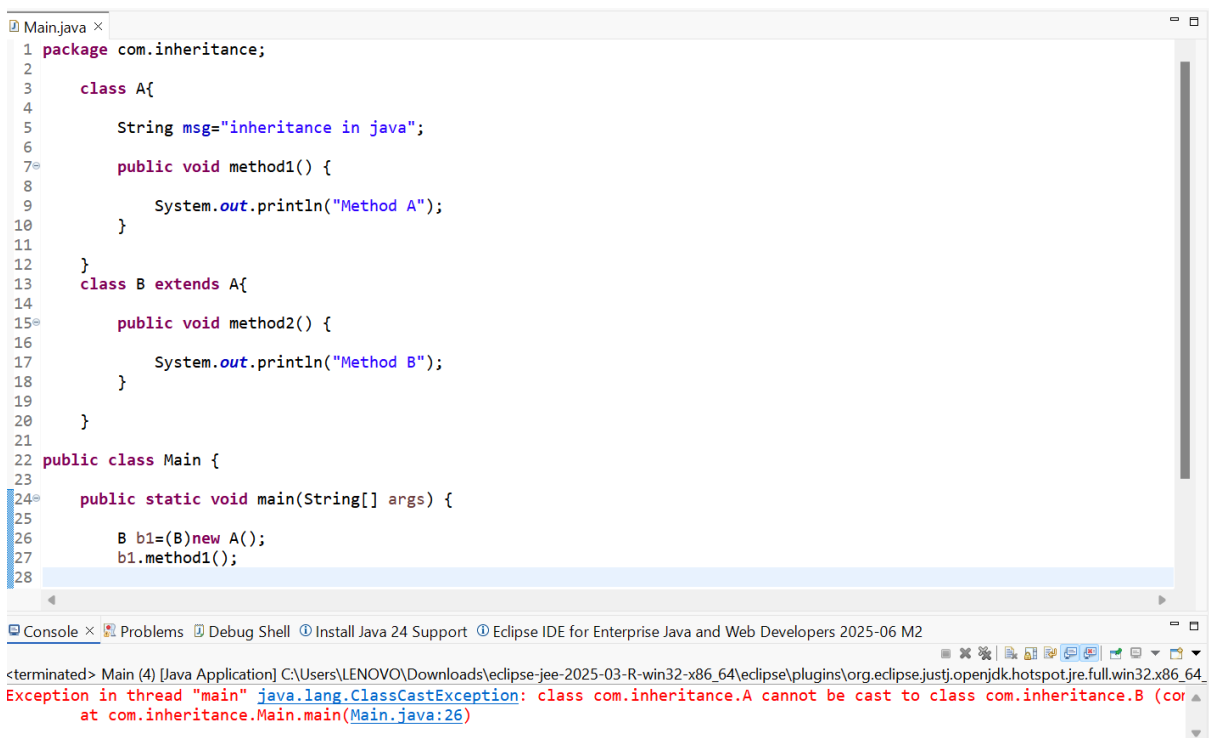 ➢ No , we can not access child class properties and behaviours using parent class reference.

```java
package com.inheritance;

class A{

    String msg="inheritance in java";

    public void method1() {

        System.out.println("Method A");
    }

}
class B extends A{

    public void method2() {

        System.out.println("Method B");
    }

}

public class Main {

    public static void main(String[] args) {

        A a=new B();
        B b=(B) a;
        System.out.println(a.msg);
        a.method1();
        a.method2();



    }

}
```

Console:
```
<terminated> Main (4) [Java Application] C:\Users\LENOVO\Download
Exception in thread "main" java.lang.Error: Unreso
    The method method2() is undefined for the

    at com.inheritance.Main.main(Main.java:31)
```

10. when does java.lang.ClassCastException raised ?

When we store parent class object into child class reference variable then it raise

java.lang.ClassCast Exception.
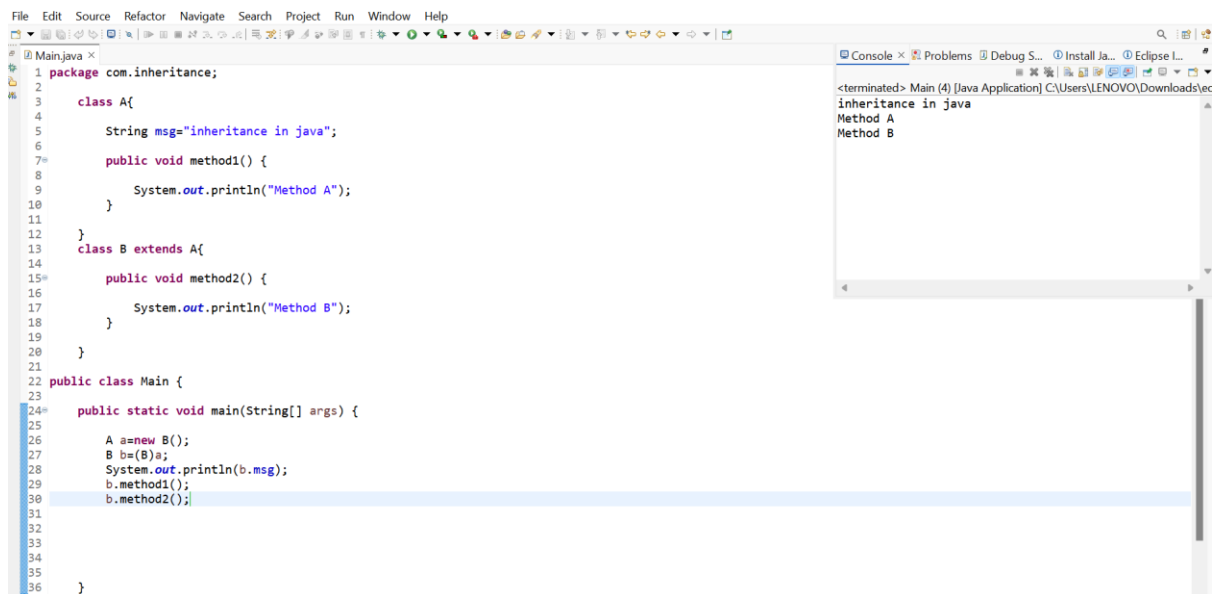
```java
package com.inheritance;

class A{

    String msg="inheritance in java";

    public void method1() {

        System.out.println("Method A");
    }

}
class B extends A{

    public void method2() {

        System.out.println("Method B");
    }

}

public class Main {

    public static void main(String[] args) {

        B b1=(B)new A();
        b1.method1();

```

Console:
```
<terminated> Main (4) [Java Application] C:\Users\LENOVO\Downloads\eclipse-jee-2025-03-R-win32-x86_64\eclipse\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_
Exception in thread "main" java.lang.ClassCastException: class com.inheritance.A cannot be cast to class com.inheritance.B (com
    at com.inheritance.Main.main(Main.java:26)
```

11. Any Possible ways to store parent class reference into child class reference ?

➤ yes, there is a way to store parent class reference into child class reference.

```java
package com.inheritance;

class A{

    String msg="inheritance in java";

    public void method1() {

        System.out.println("Method A");
    }

}
class B extends A{

    public void method2() {

        System.out.println("Method B");
    }

}

public class Main {

    public static void main(String[] args) {

        A a=new B();
        B b=(B)a;
        System.out.println(b.msg);
        b.method1();
        b.method2();




    }
```

Console output:

```
<terminated> Main (4) [Java Application] C:\Users\LENOVO\Downloads\ec
inheritance in java
Method A
Method B
```