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

Ans: Yes,we access parent class properties and behaviours using parent class reference.

Source code:

```
	package com.inhertitance;
class A {
		 String message="Parent class";
		public void displayParentMessage() {
			System.out.println("parent method");
		}
	}
	class B extends A{
		public void displayChildMessage() {
			System.out.println("Child method");
		}
	}
public class Example{

	public static void main(String[] args) {

		A a1=new A();
		System.out.println(a1.message);
		a1.displayParentMessage();
	}

}
```

Output:

Parent class

parent method

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

Ans: yes,we access parent class properties and behaviours using child class reference

Source code:

```
package com.inhertitance;
class A {
	String message="Parent class";
	public void displayParentMessage() {
		System.out.println("parent method");
	}
}
class B extends A{
	public void displayChildMessage() {
		System.out.println("Child method");
	}
}
public class Example{

	public static void main(String[] args) {

		B b1=new B();
		System.out.println(b1.message);
		b1.displayParentMessage();
	}

}
```

Output:

Parent class

parent method

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

Ans: No,we can't access parent class private properties and behaviours using parent class reference from child class because private scope is only within the class.

Source code:

```
package com.inhertitance;
class A {
        private String message="Parent class";
        private void displayParentMessage() {
                System.out.println("parent method");
        }
}
class B extends A{
        public void displayChildMessage() {
                System.out.println("Child method");
        }
}
public class Example{

public static void main(String[] args) {

        A a1=new B();
        System.out.println(a1.message);
        a1.displayParentMessage();
}
```

```
}
```

Output:

Exception in thread "main" java.lang.Error: Unresolved compilation problems:

The field A.message is not visible

The method displayParentMessage() from the type A is not visible

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

Ans: Yes,we access child class properties and behaviours using child class reference

Source code:

```
package com.inhertitance;
class A {
		String message="Parent class";
		public void displayParentMessage() {
			System.out.println("parent method");
		}
	}
	class B extends A{
		public void displayChildMessage() {
			System.out.println("Child method");
		}
	}
public class Example{

	public static void main(String[] args) {
		B b1=new B();
		b1.displayChildMessage();
```

```
	}

}
```

Output:

Child method

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

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

Source code:

```
		package com.inhertitance;
class A {
		 String message="Parent class";
		public void displayParentMessage() {
			System.out.println("parent method");
		}
	}
	class B extends A{
		public void displayChildMessage() {
			System.out.println("Child method");
		}
	}
public class Example{

	public static void main(String[] args) {

		B b1=new B();
		System.out.println(b1.message);
		b1.displayParentMessage();
	}
```

```
}
```

Output:

```
Parent class
parent method
```

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

Ans: Yes,we can store child class object into parent class reference variable but we can only access parent properties and behaviours.

Source code:

```
package com.inhertitance;
class A {
	String message="Parent class";
	void displayParentMessage() {
		System.out.println("parent method");
	}
}
class B extends A{
	public void displayChildMessage() {
		System.out.println("Child method");
	}
}
public class Example{

	public static void main(String[] args) {
		A a1=new B();
		a1.displayParentMessage();
		System.out.println(a1.message);
	}
```

```
}
```

Output:

```
parent method
Parent class
```

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

Ans: We use extends keyword to make relation b/w classes to classes

Example:

```
class A {
        String message="Parent class";
        void displayParentMessage() {
                System.out.println("parent method");
        }
}
class B extends A{
        public void displayChildMessage() {
                System.out.println("Child method");
        }
}
```

8.how many types of inheritance ?

Ans: There are 5 types of inheritance.they are

1. Single level inheritance
2. Multi level inheritance
3. Hierarchy level inheritance
4. Multiple inheritance
5. Hybrid inheritance

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

Ans: No,we can't access child class properties and behaviours using parent class reference

Source code:

```
package com.inhertitance;
class A {
		String message="Parent class";
		void displayParentMessage() {
			System.out.println("parent method");
		}
	}
	class B extends A{
		public void displayChildMessage() {
			System.out.println("Child method");
		}
	}
public class Example{

	public static void main(String[] args) {
		A a1=new A();
		a1.displayChildMessage();
	}

}
```

Output:

```
Exception in thread "main" java.lang.Error: Unresolved compilation problem:
The method displayChildMessage() is undefined for the type A
```

10.when does java.lang.ClassCastException raised ?

Ans: When we store parent class object into child class reference variable then it raise java.lang.ClassCast Exception.

Source code:

```
package com.inhertitance;

class A {
        String message="Parent class";
        void displayParentMessage() {
                System.out.println("parent method");
        }
}
class B extends A{
        public void displayChildMessage() {
                System.out.println("Child method");
        }
}
public class Example{

        public static void main(String[] args) {
                B b1=(B)new A();
                b1.displayChildMessage();
        }

}
```

Output:

```
Exception in thread "main" java.lang.ClassCastException: class com.inhertitance.A cannot be cast to class com.inhertitance.B (com.inhertitance.A and com.inhertitance.B are in unnamed module of loader 'app')
```

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

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

Source code:

```
package com.inhertitance;
class A {
		String message="Parent class";
		void displayParentMessage() {
			System.out.println("parent method");
		}
	}
	class B extends A{
		public void displayChildMessage() {
			System.out.println("Child method");
		}
	}
public class Example{

	public static void main(String[] args) {
		A a1=new B();
		B b1=(B)a1;
		b1.displayChildMessage();
		b1.displayParentMessage();
		System.out.println(b1.message);
	}
}
```

Output:

```
Child method
parent method
Parent class
```