

Polymorphism. Overloading

Polimorfizm so'zi yunoncha ikki so'zning birikmasidan tashkil topgan: «**poly**» — ko'p va «**morphs**» — formalar.

Polymorphism so'zi turli ma'nolarda qo'llaniladi va u biror narsa yoki hodisaning turli xil shakllarda amalga oshishini bildiradi.



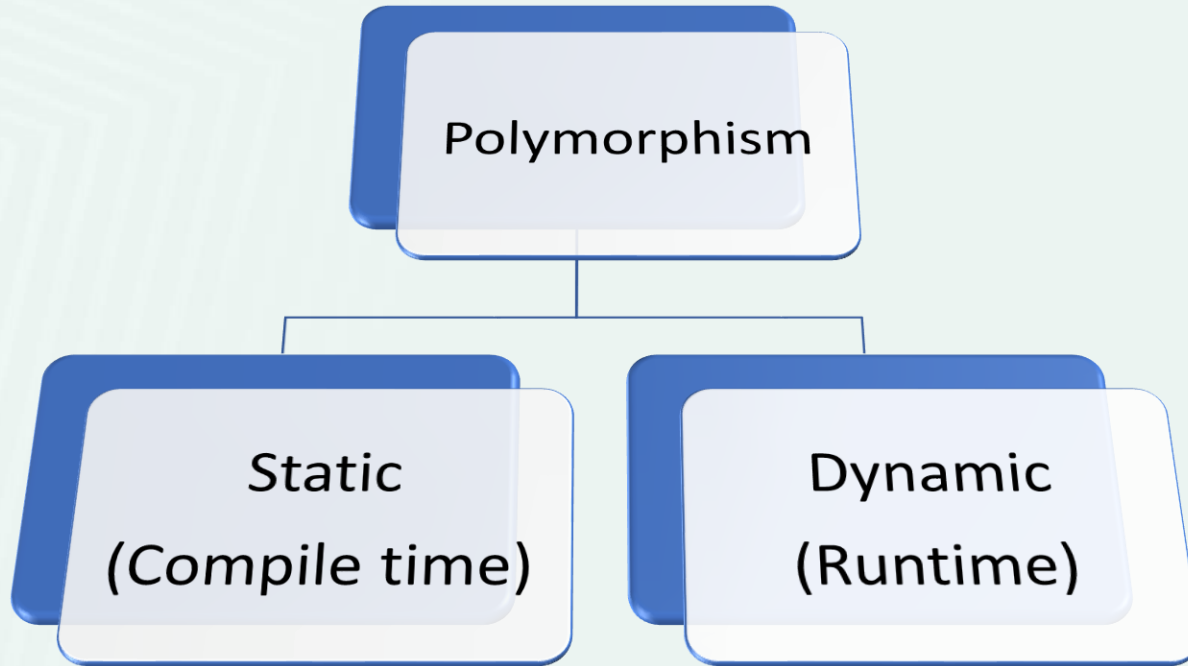


Polymorphism











Overloading

```
public abstract class Math {  
    //      more code  
    public static int max(int a, int b) {  
        return (a >= b) ? a : b;  
    }  
  
    public static long max(long a, long b) {  
        return (a >= b) ? a : b;  
    }  
  
    public static float max(float a, float b) {  
        //      more code  
        return (a >= b) ? a : b;  
    }  
  
    public static double max(double a, double b) {  
        //      more code  
        return (a >= b) ? a : b;  
    }  
    //      more code  
}
```


Overriding

```
public class Object {  
    // more code  
    public String toString() {  
        return getClass().getName() + "@" +  
Integer.toHexString(hashCode());  
    }  
    // more code  
}
```

```
public class Country {  
    private String language;  
    private long population;  
    private double area;  
    private String continent;  
    private String currency;  
    private String name;
```

```
// Constructors  
// Methods
```

```
@Override  
public String toString() {  
    return "Country{" +  
        "language=" + language + "\" +  
        ", population=" + population +  
        ", area=" + area +  
        ", continent=" + continent + "\" +  
        ", currency=" + currency + "\" +  
        ", name=" + name + "\" +  
        '}'
```

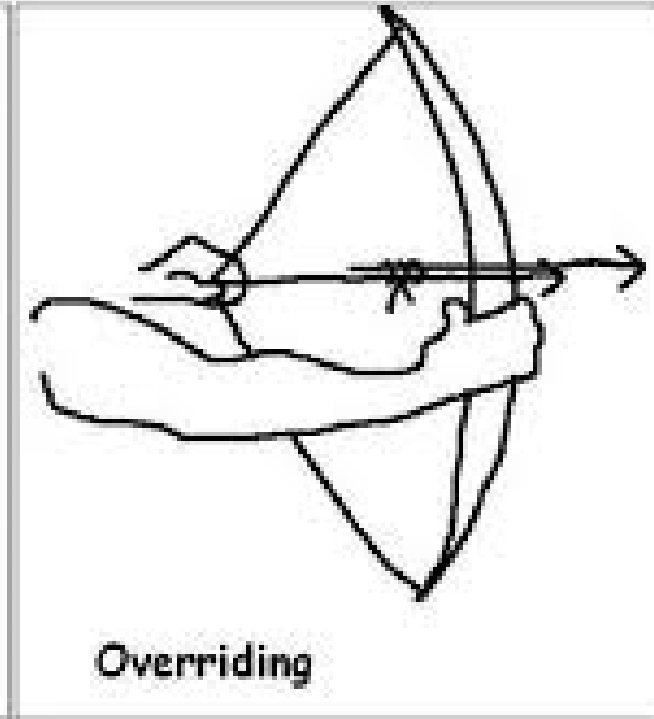
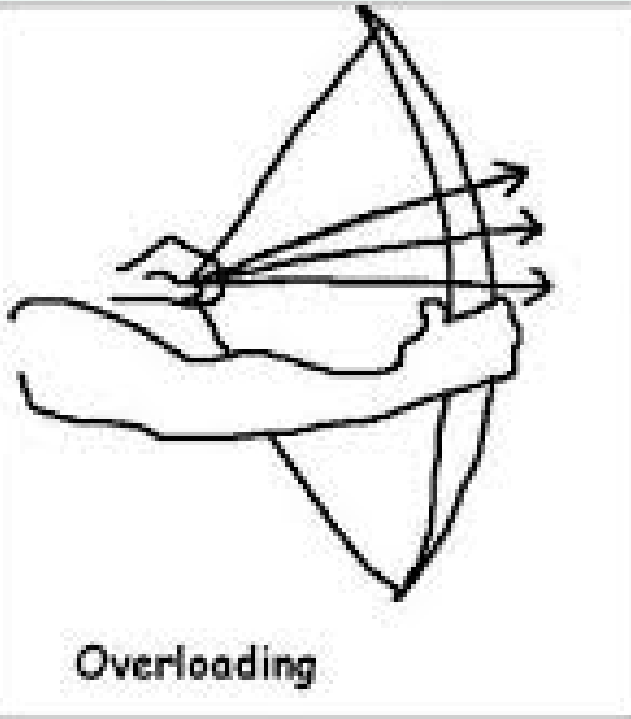
```
    }  
}
```

```
public class User {  
    private String username;  
    private String email;  
    private String phone;  
    private String password;
```

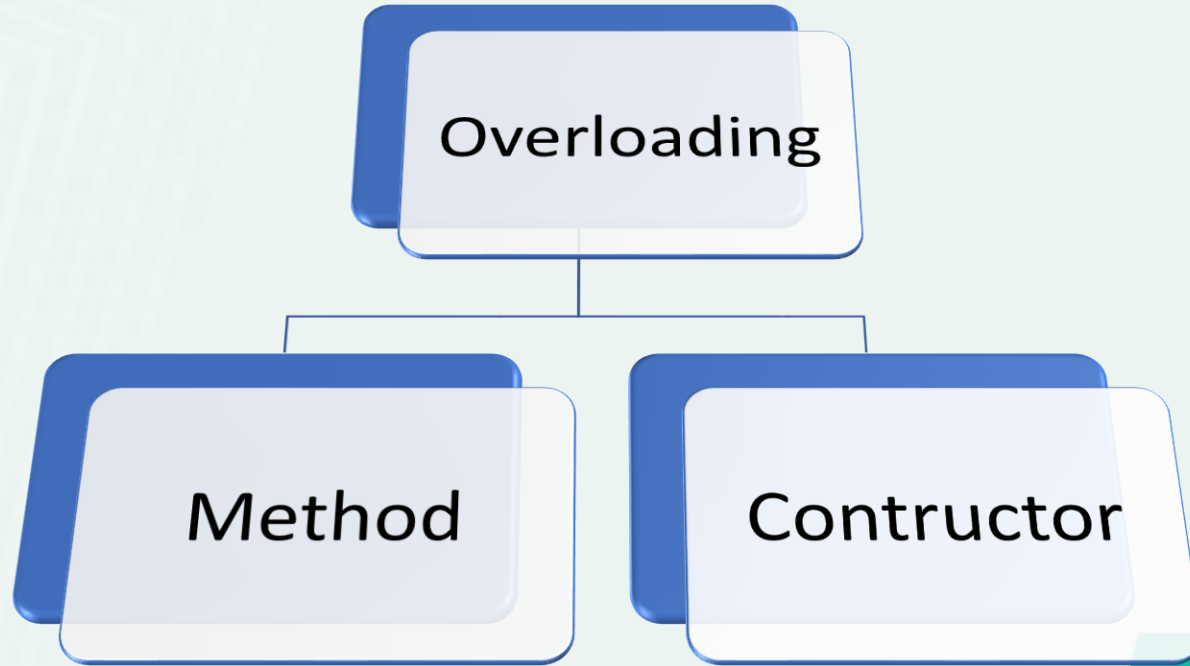
```
// Constructors  
// Methods
```

```
@Override
```

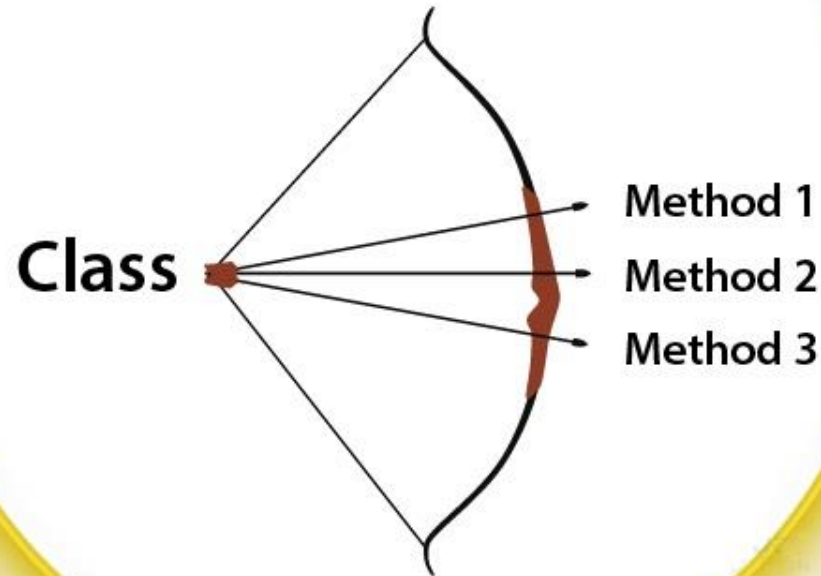
```
public String toString() {  
    return "User{" +  
        "username=" + username + "\" +  
        ", email=" + email + "\" +  
        ", phone=" + phone + "\" +  
        ", password=" + password + "\" +  
        '}'  
    }  
}
```



Overloading



Method Overloading in Java



Method Overloading :

Different Numbers of Arguments (Argumentlar soni turlicha)

Arguments of Different Types (Argumentlar toifasi turlicha)

Type Promotion (Qaytaradigan qiymat toifasi turlicha)

Other Polymorphic Characteristics in Java

1. **Coercion (majburlash)**
2. **Operator Overloading (Operatorni qayta yuklash)**
3. **Polymorphic Parameters (Polymorphic parameterlar)**

Coercion

Noaniq toifani majburan (avtomatik) bir toifaga o'tkazishga polimorphik majburiy amalga oshirish deyiladi. Bu dastur bajarilayotganda kompilyatorda xato bermasligi uchun qilinadi. Masalan:

```
String str = "string" + 2;
```

```
String str = "string" + 2.2;
```

```
String str = "string" + false;
```

Operator Overloading

Biror operatorning bittadan ortiq turli maqsadlarda ishlatilishini operator overloading deyiladi. Masalan (+) amali matematik qo'shish va mantiqiy konkatensasiya amalini bajarishi mumkin.

```
String str = "2" + 2;    // 22
```

```
int sum = 2 + 2;    //4
```

```
System.out.printf(" str = %s\n sum = %d\n", str, sum);
```


Polymorphic Parameters

Polimorphic parametrlar metod yoki atribut nomini turli xil toifani qabul qilishga ruxsat etadi. Masalan:

```
public class TextFile extends GenericFile {  
    private String content;  
    public String setContentDelimiter() {  
        int content = 100;  
        this.content = this.content + content;  
    }  
}
```

E'TIBORINGIZ UCHUN RAXMAT

