

Polymorphism

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1 Polymorphism is a key principle in OOP, and it promotes code reusability, flexibility and modularity.
2 It simplifies the writing of code that can work with a variety of objects without needing
3 to know their specific types, making it a powerful tool for designing and implementation complex
  software systems.
4
5 Polymorphism --- 1.Compile Time  2.Run Time
6 1.Compile Time --- 1.Function Overloading  2.Operator Overloading
7 2.Run Time      --- 1.Function Overriding
```

```
In [1]: 1 class polyDemo:
        2
        3     def add(self,a=0,b=0,c=0,d=0):
        4         print("Addition of Given Numbers: ",a+b+c+d)
```

```
In [2]: 1 a1 = polyDemo()
```

```
In [3]: 1 a1.add(10,20)
```

Addition of Given Numbers: 30

```
In [4]: 1 a1.add(10,20,30)
```

Addition of Given Numbers: 60

```
In [5]: 1 a1.add(10,20,30,40)
```

Addition of Given Numbers: 100

In [6]: 1 a1.add(1,2,3,4,5)

TypeError

Traceback (most recent call last)

Cell In[6], line 1

----> 1 a1.add(1,2,3,4,5)

TypeError: polyDemo.add() takes from 1 to 5 positional arguments but 6 were given

```
In [15]: 1  ##Program for compile Time polymorphism ---Function Overloading
2
3  class SearchBar:
4
5      def search(self,bname=None,pname=None,price=None):
6
7          if bname is None and pname is None:
8              print("You are looking for product price of", price ,"Rs.")
9
10         elif pname is None and price is None:
11             print(bname,"brand is available")
12
13         elif bname is None and price is None:
14             print("Are you looking for",pname)
15
16         elif bname is not None and price is not None:
17             print(bname,"with",price," Rs. is available")
18
19         elif pname is not None and price is not None:
20             print(pname,"with",price,"Rs. is available")
21
22
```

```
In [16]: 1 p1 = SearchBar()  
2  
3 p1.search(price=45000)  
4 p1.search(bname="apple")  
5 p1.search(bname="Xiaomi",price=18000)  
6 p1.search(pname="Vivo",price=8900)
```

You are looking for product price of 45000 Rs.
apple brand is available
Xiaomi with 18000 Rs. is available
Vivo with 8900 Rs. is available

```
In [ ]:
```

```
1
```