



# OVERLOADED FUNCTIONS

Two or more functions with the same name



# OVERLOADED FUNCTIONS

- Overloaded functions have the same name
- Are defined in the same scope
  - Functions with the same name but defined in different scopes are not overloaded
- Must have at least one unique parameter
- May have different return types, but that is not sufficient for an overload



## VALID FUNCTION OVERLOAD

```
struct Time { . . .};  
struct American { . . .};  
  
void print(Time t) { . . . }  
void print(American a) { . . . }
```

```
Time          t;  
American      a;  
  
    . . . .  
print(t);  
print(a);
```



## MORE VALID FUNCTION OVERLOADS

```
int function(double x, double y, double z, Time t, int a, int b, int c);
```

```
int function(double x, double y, double z, American a, int a, int b, int c);
```

## INVALID FUNCTION OVERLOAD

```
void print(Time t) { . . . }  
void print(Time& t) { . . . }  
void print(Time* t) { . . . }  
  
    . . . .  
  
Time now;  
print(now);  
print(&now);
```

```
int func(double x){. . .}  
double func(double x) {. . .}  
  
func(3.14); // which one
```



# TYPE PROMOTION VS. FUNCTION OVERLOADING

```
void f(double x) { . . . }
```

```
f(10);
```

```
f(10.0);
```

```
void f(int x) { . . . }
```

```
void f(double x) { . . . }
```

```
f(10);
```

```
f(10.0);
```