

**Lecture**

# **Working with Objects**





# Objects are passed by **reference**



## Working with objects

```
>>> a = [6, 2, 8, 2]
>>> print_data(a)
```

```
def print_data(lst):
    for elem in lst:
        print(elem)
```

## Memory





## Working with objects

```
>>> a = [6, 2, 8, 2]  
>>> print_data(a)
```

```
def print_data(lst):  
    for elem in lst:  
        print(elem)
```


## Memory





## Working with objects

```
>>> a = [6, 2, 8, 2]  
>>> print_data(a)
```



```
def print_data(lst):  
    for elem in lst:  
        print(elem)
```

## Memory





## Working with objects

```
>>> a = [6, 2, 8, 2]  
>>> print_data(a)
```

Pass a reference

```
def print_data(lst):  
    for elem in lst:  
        print(elem)
```

## Memory





## Working with objects

```
>>> a = [6, 2, 8, 1]  
>>> print_data(a)
```

id

Pass a reference

```
def print_data(lst):  
    for elem in lst:  
        print(elem)
```

## Memory





## Working with objects

```
>>> def print_data(lst):  
        for elem in lst:  
            print(elem)
```

```
>>> a = [6, 2, 8, 2]
```

```
>>> print_data(a)
```

6

2

8

2







## Working with objects

```
>>> class Child:
    def __init__(self, name, age):
        self.name = name
        self.age = age

>>> def update_age(lst):
    print("==== Updating Age ====")
    print("\n-> Initial list:")
    for child in lst:
        print(f"Name: {child.name}; Age: {child.age}")

    # Update age
    for child in lst:
        child.age += 1

    print("\n-> Final list:")
    for child in lst:
        print(f"Name: {child.name}; Age: {child.age}")

>>> classroom = [Child("Nora", 10), Child("Daniel", 13), Child("Jack", 7)]
>>> update_age(classroom)
```



## Working with objects

```
>>> class Child:
    def __init__(self, name, age):
        self.name = name
        self.age = age
```

```
>>> def update_age(lst):
    print("==== Updating Age ====")
    print("\n-> Initial list:")
    for child in lst:
        print(f"Name: {child.name}; Age: {child.age}")

    # Update age
    for child in lst:
        child.age += 1

    print("\n-> Final list:")
    for child in lst:
        print(f"Name: {child.name}; Age: {child.age}")
```

```
>>> classroom = [Child("Nora", 10), Child("Daniel", 13), Child("Jack", 7)]
>>> update_age(classroom)
```





## Working with objects

```
>>> class Child:
    def __init__(self, name, age):
        self.name = name
        self.age = age
```

```
>>> def update_age(lst):
    print("==== Updating Age ====")
    print("\n-> Initial list:")
    for child in lst:
        print(f"Name: {child.name}; Age: {child.age}")

    # Update age
    for child in lst:
        child.age += 1

    print("\n-> Final list:")
    for child in lst:
        print(f"Name: {child.name}; Age: {child.age}")
```

```
>>> classroom = [Child("Nora", 10), Child("Daniel", 13), Child("Jack", 7)]
>>> update_age(classroom)
```





## Working with objects

```
>>> class Child:
    def __init__(self, name, age):
        self.name = name
        self.age = age
```

```
>>> def update_age(lst):
    print("==== Updating Age ====")
    print("\n-> Initial list:")
    for child in lst:
        print(f"Name: {child.name}; Age: {child.age}")

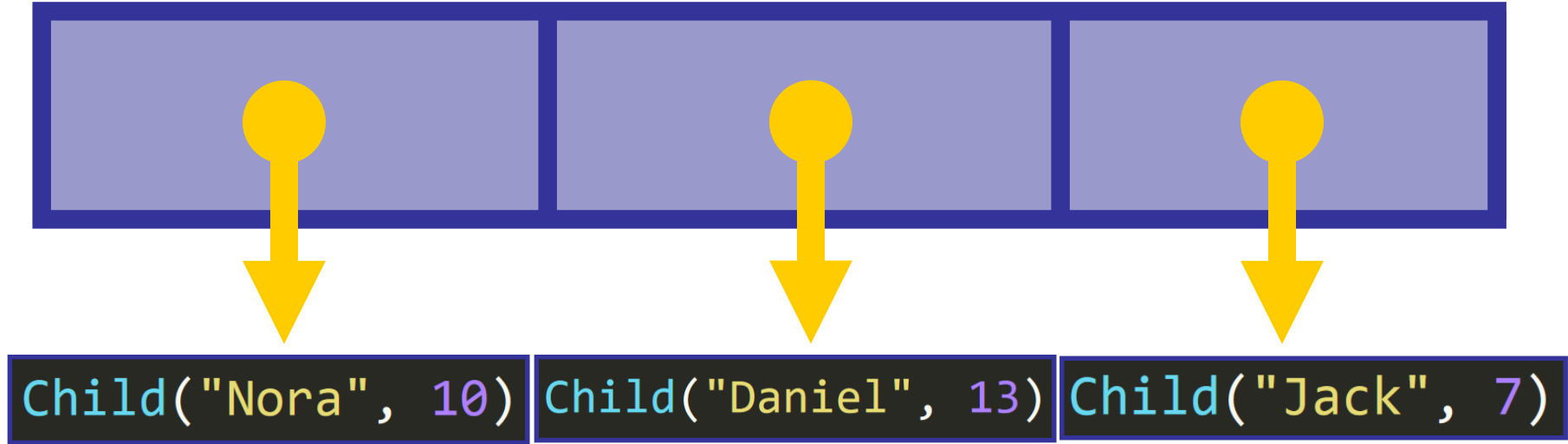
    # Update age
    for child in lst:
        child.age += 1

    print("\n-> Final list:")
    for child in lst:
        print(f"Name: {child.name}; Age: {child.age}")
```

```
>>> classroom = [Child("Nora", 10), Child("Daniel", 13), Child("Jack", 7)]
>>> update_age(classroom)
```



## Working with objects





## Working with objects

```
for child in lst:  
    child.age += 1
```

Child("Nora", 10)

Child("Daniel", 13)

Child("Jack", 7)



## Working with objects

### Reference

```
for child in lst:  
    child.age += 1
```

`Child("Nora", 10)`

`Child("Daniel", 13)`

`Child("Jack", 7)`



# Objects are passed by **reference**





# Time to Practice

