

CS 2100 – Java Review

Python vs. Java

Let's explore a few similarities and differences...

Profs. Basit and Floryan

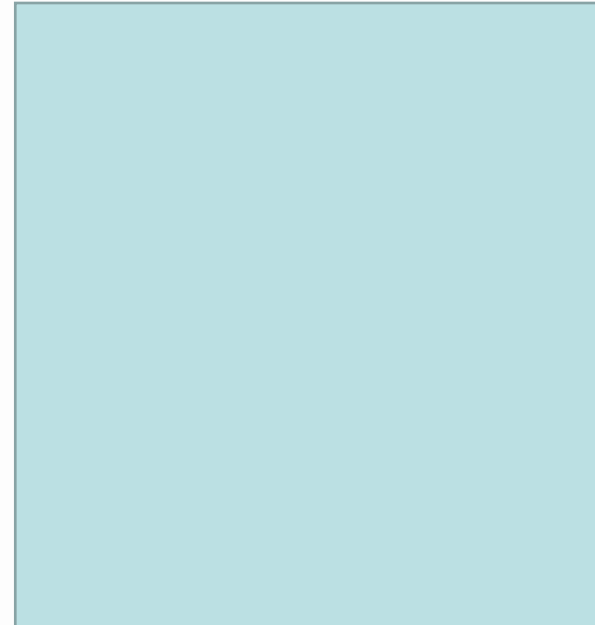
Python to Java Example

- **Converting a Python script into a Java program**

Python

```
#find GCD(144,27)
x = 144
y = 27
while y != 0:
    temp = x
    x = y
    y = temp % x
print(x)
```

Java



Python to Java Example

- **Comments** are with `//` instead of `#`

Python

```
#find GCD(144,27)
x = 144
y = 27
while y != 0:
    temp = x
    x = y
    y = temp % x
print(x)
```

Java

```
//find GCD(144,27)
```

A basic
java
comment



Python to Java Example

- **Variables** must have their type *declared* when created
- All lines must end with **semicolons (;)**

Python

```
#find GCD(144,27)
x = 144
y = 27
while y != 0:
    temp = x
    x = y
    y = temp % x
print(x)
```

Java

```
//find GCD(144,27)
int x = 144;
int y = 27;
```

Declare
variables
before
using them

Java
statements
end with a
semicolon

Python to Java Example

- **While loops** requires **parentheses** and opening **curly bracket** (at start of body)

Python

```
#find GCD(144,27)
x = 144
y = 27
while y != 0:
    temp = x
    x = y
    y = temp % x
print(x)
```

Java

```
//find GCD(144,27)
int x = 144;
int y = 27;
while (y != 0) {
```

Note, there is no semicolon for control flow statements (e.g. while loop)

How to convert this line to Java?

- In Python
temp = x
- Which of the below is correct? Think about what we said earlier ...

A) `int temp = int x;`

B) `int temp = x;`

C) `temp = int x;`

D) `temp = x;`

How to convert this line to Java?

- `temp = x` → `int temp = x;`
- This is because `x` is already **declared**, so we don't declare it again.
- `Temp` is NOT declared yet, so we have to **declare** it's data type.

A) `int temp = int x;`

B) `int temp = x;` ←

C) `temp = int x;`

D) `temp = x;`

Python to Java Example

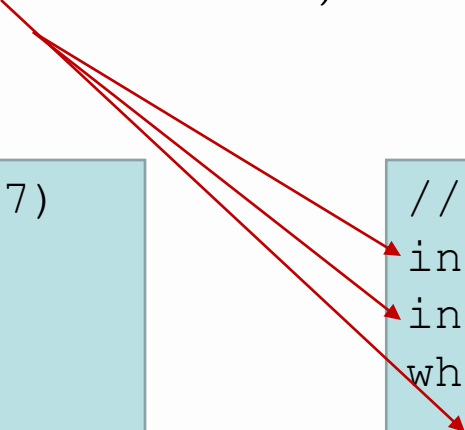
- Declare only **NEW** variables. Also, remember semi-colons!

Python

```
#find GCD(144,27)
x = 144
y = 27
while y != 0:
    temp = x
    x = y
    y = temp % x
print(x)
```

Java

```
//find GCD(144,27)
int x = 144;
int y = 27;
while (y != 0) {
    int temp = x;
    x = y;
    y = temp & x;
}
```



Python to Java Example

- You have to close the loop body with a **closing curly bracket**.
- Java's **overly verbose print statement!!** 😊

Python

```
#find GCD(144,27)
x = 144
y = 27
while y != 0:
    temp = x
    x = y
    y = temp % x
print(x)
```

Java

```
//find GCD(144,27)
int x = 144;
int y = 27;
while (y != 0) {
    int temp = x;
    x = y;
    y = temp % x;
}
System.out.println(x) ;
```

