GOVERNMENT OF WESTERN AUSTRALIA

TAFE WA South Metropolitan

Conditional Instructions

(Session 5)

Review (Comparison Operators)

```
a = 5
b = 5
# are two values equal?
print(a == b)
# is a equal or less than b?
print(a <= b)
# is a equal or greater than b?
print(a >= b)
# is a less than b?
print(a < b)
# is a greater than  b?
print(a > b)
```

```
>>> a = 5
>>> b = 5
>>> print(a == b)
True
>>> print(a <= b)
True
>>> print(a >= b)
True
>>> print(a < b)
False
>>> print(a > b)
False
```

Overview – Session 5

- Conditional Instructions
- The **if** statement
- The **if-else** statement
- The **nested if-else** statement
- The **if-elif-else** statement

Conditional Instructions

- When a specific condition is met or not
- An *if statement* is written as:

if expression:

    statement(s)

- Note that Python relies on *indentation* to define scope
- It is recommended to use 4 spaces for indentation

if Statement Example

```
# if statement, consists of "if" keyword
# and a colon followed by a newline
# notice the indented print statement
a = 10
b = 5
if a > b:
    print("a is greater than b")
```

```
a is greater than b
>>>
```

Activity 1: if year is greater than or equal 1991, Print “Python was created ”

```
year = …                    # write your code, instead of …
if year … :                 # write your code
    print(…)                # write your code, use also end=
    print("by Guido van Rossum.")
print("Python is a high-level programming language.")
```

Output:

```
Python was created by Guido van Rossum.
Python is a high-level programming language.
```

The **pass** Statement

- **if** statement cannot be empty, but you can use the **pass** statement to avoid errors
- pass just does nothing, however, you can put it in places where your code will eventually go

```
# in this program the pass statement is used
# notice that we have an if statement with no content
letter = input("Enter a character, q to quit: ")
if letter == 'q':
    # not implemented yet
    pass
print("You entered: ", letter)
```

if Statement and the **and** Logical Operator

```
# test if x is greater then y and
# if x is greater than z
x = 10
y = 5
z = 3
if x > y and x > z:
    print("x is greater than y and z")
```

```
x is greater than y and z
>>>
```

if Statement and the **or** logical operator

```
# test if x is greater then y, or if x
# is greater than z
x = 10
y = 5
z = 3
if x > y or x > z:
    print("x is greater than y, or x is greater than z")
```

```
x is greater than y, or x is greater than z
```

The **if-else** Statement

- When the condition specified for the “if” is not met, then the else condition says what to do
- An *if-else* statement is written :

if expression:

    statement(s)

else:

    statement(s)

if-then Statement Example

```
# in this example, we use two variables a and b
# if a > b, then print “a is greater than b”
# otherwise, print “a is less than b”
a = 5
b = 10
if a > b:
    print("a is greater than b")
else:
    print("a is less than b")
```

```
a is less than b
>>>
```

Activity 2: Write a program that takes a string as input and prints the sentence: “Python language” if the imputed string is “Python”, otherwise, it prints “Not Python”

```
language = input(...)    # your code
if language == … :       # your code
    print(…)             # your code
else:
    print(…)         # your code
```

Output:

```
Pease enter a programming language: C
Not Python
>>>
Pease enter a programming language: Python
Python language
```

The nested if-else statement

```
# in this example, we use two if-then statements
# note that if-then statements are not at the same indentation level
x = 11
if x > 0:
    print("x is a positive number")
    if x > 10:
        print("x is above 10")
    else:
        print("x is not above 10")
else:
    print("x is an negative number")
```

```
x is a positive number
x is above 10
>>>
```

The **if-elif-else** Statement

- **elif** is used to check more than one condition

```
if expression:
    statement(s)
elif expression (true or not):
    statement(s)
elif expression (true or not):
    statement(s)
…
else:
    statement(s)
```

The **if-elif-else** Statement example

```
# in this example, x is not greater than y,
# so the first (if) condition is not true
# the elif is true, so we do not go
# to the else condition
x = 5
y = 5
if x > y:
    print("x is greater than y")
elif x == y:
    print("x and y are equal")
else:
    print("y is greater than x")
```

```
x and y are equal
>>>
```

Activity 3: Write a program that takes an integer as input and determine the ticket price

```
age = int(input(...))          # your code instead of ...
full_price = 10.00
if age < 15:
    price = full_price * ...   # 50% discount, your code
elif age <= 17:
    price = full_price * 0.7   # 30% discount
else:
    price =  ...               # no discount, your code
# format the float value
print(f"Your ticket is: ${... :.2f}")  # your code instead of ...
```

```
Enter your age : 10
Your ticket is: $5.00
>>>
=== RESTART: C:\Users\
Enter your age : 17
Your ticket is: $7.00
>>>
=== RESTART: C:\Users\
Enter your age : 20
Your ticket is: $10.00
```

Questions?