

# Python for Beginners – Class 2 Notes

## Boolean Expressions

Expressions that evaluates to TRUE/FALSE

- Boolean operators
  - o < (less than)
  - o <= (less than or equal to)
  - o > (greater than)
  - o >= (greater than or equal to)
  - o == (equal comparison)
  - o != (not equal)
- Examples of Boolean expressions:
  - o `7 > 5` is TRUE
  - o `6 == 6` is TRUE
  - o `10 < 4` is FALSE
  - o `9 >= 10` is FALSE
- Remember, you can use **variables** to compare it against a value
  - o For example, if you set a variable `number = 10`, the boolean expression `number > 5` is TRUE, since 10 is greater than 5.

## IF/ELIF/ELSE statements

- One case

```
if (Boolean expression):
    # ...
```
- Two cases

```
if (Boolean expression):
    # blah blah
else:
    # blah blah
```
- More than two cases

```
if (Boolean expression):
    # blah blah
elif (Boolean expression):
    # blah blah
elif (Boolean expression):
    # blah blah
else:
    # blah blah
```

- Remember to always add a **COLON** after your if/elif/else statement, and **INDENT** the next line that contains the code if the expression is true
- **if...elif...elif...else**
  - o Python runs the **if/elif/else** statements from **top to bottom**
    - If **ONE** of the statements is true, it **SKIPS** the rest of the elif's and else
  - o **elif** statements are **optional**, but if it exists, it must be **AFTER** the IF statement
  - o **else** statement is **optional**, but if it exists, it **MUST** be at the **end**

#### Example:

```
score = 92
```

```
if (score > 90):
    print ("Excellent job!!!!")
elif (score < 70):
    print ("Do better next time!!")
else:
    print ("Nice!")
```

- Since the score is set to **92**, the program will output “Excellent job!!!!” because it satisfies the first **if statement**.
- If the score was instead set to **80**, the program will output “Nice!” because it does **not** satisfy the **if** OR the **elif** statement, so it will go to the **else statement**.
- If the score was set to **50**, the program will output “Do better next time!!” because it does **not** satisfy the **if**, but it satisfies the **ELIF** (since the score is less than 70).

#### Boolean compound operators

- **and** – returns true if **BOTH** expressions are true
- **or** – returns true if **EITHER** or **BOTH** expressions are true

#### Example:

```
english = 95
```

```
math = 70
```

```
if (english > 80 and math > 80):
    print ("Wow!!")
else:
    print ("Do better next time!!")
```

This will output “Do better next time!!”, since **math** is **BELOW 80** and we are using **and** (requires BOTH statements to be true).

If the **and** was instead replaced with an **or**, then the output would be “Wow!!”, since **English** is **ABOVE 80** (**or** only requires at least one of the statements to be true).