Python 101

Writing Comments

```
Anything written after a '#'
is a comment. It helps people
understand the program without
affecting the code.
```

Printing Statements

```
print("Hello World")

# Outputs "Hello World"
```

Variable Types

```
String ->        "hi", "101"

Integer ->       101, 2000

Float ->         3.141, 1.01

Boolean ->       TRUE, FALSE

List ->          [1, 2, 3, 4]
```

Basic Operators

```
+     Plus
-     Minus
/     Divide
*     Multiply

<     Less than
>     Greater than
>=    Greater or equal to
<=    Less or equal to
!=    Not equal to
==    Equal to
```

If/Else Conditions

```
if score >= 75:
  grade = 'A'

elif score >= 65:
  grade = 'B'

else:
  grade = 'C'

# if score == 80,
# print(grade) outputs 'A'
```

Lists and Indexing

```
# Indexing starts from 0
scores = ['A', 'B', 70, 60]

scores[0]        # 'A'
# Gets item at 0th index

scores[1:3]      # 'B', 70
# Gets items from 1st to 3rd
# index, but excludes the 3rd

scores[2:]       # 70, 60
# Items from 2nd index onwards

scores[:-2]      # 'A', 'B'
# Gets items until it reaches
# the 2nd last index

# When counting backwards,
# index starts from -1

len(scores)      # 4
# Number of items in list
```

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For Loops

```
grades = ['A', 'B', 'C', 'D']

for item in grades:
  print(item)

# Prints all items in grades
# Outputs 'A', 'B', 'C', 'D'

for i in range(5):
  print(i)

# Prints numbers up to 4
# Outputs 0, 1, 2, 3, 4

# range gives a sequence of
# numbers. it starts from 0
# by default and stops before
# the specified number
```

While Loops

```
i = 0
grades = ['A', 'B', 'C', 'D']

while i < len(grades):
  print(i)
  i += 1

# Outputs 0, 1, 2, 3

k = 0

while True:
  k += 1
  if k == 2:
    continue
  if k == 5:
    break
  print(i)

# Outputs 1, 3, 4

# continue goes to next loop
# break ends the loop
```

Type Conversion

```
int('345')      # 345
str(678)        # "678"
```

Functions

```
def addNumbers(num1, num2):
  num1 = int(num1)
  num2 = int(num2)
  total = num1 + num2
  return total

addNumbers("3", 5)
# Outputs 8
# Why is there no error?
```

```
def areaTriangle(base, height):
  area = 0.5 * base * height
  txt = "Area: " + area + "m2"
  return txt

areaTriangle(10, 20)
# Outputs 'Area: 100m2'

Try building your own function!
```