



# *Four and Half Pillars of Programming*

**What you need to know as Beginner  
Programmers**

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*Variables and Operations*

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165

a = 5

166

b = 12

167

c = math.sqrt(a\*\*2 + b\*\*2)

*Variables and Operations*

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*Functions ~ packaging multiple commands*

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```
>>> def calcHypotenuese(a, b):  
        return math.sqrt(a**2 + b**2)
```

```
>>> calcHypotenuese(5, 12)
```

```
13.0
```

Functions ~ packaging multiple commands

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*Loops ~ repetitive execution*

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```
>>> for i in range(10):  
      print(i)
```

```
0  
1  
2  
3  
4  
5  
6  
7  
8  
9
```

Loops ~ repetitive execution

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*Conditionals ~ making a decision*



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```
>>> num = -3
>>> if (num > 0):
        print("POS")
    elif (num < 0):
        print("NEG")
    else:
        print("ZERO")
```

NEG

*Conditionals ~ making a decision*

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*Data Aggregates ~ lots of variables grouped together*

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```
>>> list = [7, 4, 2, 9, 3]
>>> list
[7, 4, 2, 9, 3]
>>> list[0]
7
>>> list[3]
9
```



Data Aggregates ~ lots of variables grouped together