

```
In [1]: print("Hello World!")
```

Hello World!

The dream

Put together a crew worthy of an Ocean's 11 film

Obtain the secret herbs and spices blend

Bootleg chicken through Peri Peri

Start your own university using the profits

Graduate top of your class

-> Not an algorithm: no logical connections, no clear input and output, infinite loops

Ultimate Study Strategy

While there is a book you have not read:

Read a book

-> Not an algorithm: no clear input and output, infinite loops

Solve any centralised maze

Place hand on the left wall

Walkthrough maze, maintaining hand contact with the left wall

Stop when the centre is reached

-> It is an algorithm

Farmer can only carry 1 object at a time:

wolf + rabbit => wolf eats rabbit

rabbit + cabbage => rabbit eats cabbage

1. farmer -> bring the rabbit
2. farmer <- nothing
3. farmer -> bring the cabbage
4. farmer <- with the rabbit
5. farmer -> bring the wolf
6. farmer <- with nothing
7. farmer -> bring the rabbit

Primes

input: " "

Steps:

check all the numbers less than " " // 2
output: is " " a prime number

Class Activity 2.6

Question 1

```
In [ ]: print("F_0 =", 0)
        print("F_1 =", 1)
        print("F_2 =", 0+1)
        print("F_3 =", 1+1)
        print("F_4 =", 1+2)
```

Question 2

```
In [ ]: print("F_0 =", 0)
        print("F_1 =", 1)
        print("F_2 =", 0+1)
        print("F_3 =", 1+1)
        print("F_4 =", 1+2)
        print("F_5 =", 2+3)
        print("F_6 =", 3+5)
        print("F_7 =", 5+8)
        print("F_8 =", 8+13)
        print("F_9 =", 13+21)
        print("F_10 =", 21+34)
```

Class Activity 2.7

Question 1

```
In [3]: print(2.23615**2)

5.000366822499999
```

Question 2

```
In [13]: print((1 + 2.23615) / 2)

# import the math module
import math

# print the square root of 5
print(math.sqrt(5))

# print the Golden Ratio
print((1 + math.sqrt(5)) / 2)

1.618075
2.23606797749979
1.618033988749895
```

Class Activity 2.8

Question 1

```
In [14]: print("F_0 =", 0)
print("F_1 =", 1)
print("F_2 =", 0+1)
print("F_3 =", 1+1)
print("F_3/F_2 =", 2/1)
print("F_4 =", 1+2)
print("F_4/F_3 =", 3/2)
print("F_5 =", 2+3)
print("F_5/F_4 =", 5/3)

F_0 = 0
F_1 = 1
F_2 = 1
F_3 = 2
F_3/F_2 = 2.0
F_4 = 3
F_4/F_3 = 1.5
F_5 = 5
F_5/F_4 = 1.6666666666666667
```

Question 2

```
In [15]: print("F_0 =", 0)
print("F_1 =", 1)
print("F_2 =", 0+1)
print("F_3 =", 1+1)
print("F_3/F_2 =", 2/1)
print("F_4 =", 1+2)
print("F_4/F_3 =", 3/2)
print("F_5 =", 2+3)
print("F_5/F_4 =", 5/3)
print("F_6 =", 3+5)
print("F_6/F_5 =", 8/5)
print("F_7 =", 5+8)
print("F_7/F_6 =", 13/8)
print("F_8 =", 8+13)
print("F_8/F_7 =", 21/13)

F_0 = 0
F_1 = 1
F_2 = 1
F_3 = 2
F_3/F_2 = 2.0
F_4 = 3
F_4/F_3 = 1.5
F_5 = 5
F_5/F_4 = 1.6666666666666667
F_6 = 8
F_6/F_5 = 1.6
F_7 = 13
F_7/F_6 = 1.625
F_8 = 21
F_8/F_7 = 1.6153846153846154
```