Advanced Programming for Python  
Assignment#1  
  
Daud Raza  
401920

# Number Swapping

Code:

1. a **=** input("Enter First Number")
2. b **=** input("Enter Second Number")
3. # The numbers have been assigned to new variables for swapping
4. c **=** a
5. d **=** b
6. # The numbers are swapped in the next command
7. a **=** d
8. b **=** c
9. print(a)
10. print(b)

Output:

1. runcell(0, 'F:/Masters/Semester 1/Advanced Programming for Python/Assignment/Assignment#1/Swap\_Numbers.py')
2. Enter First Number 1
3. Enter Second Number 2
4. 2
5. 1

# Factorial of a Number

Code:

1. # Defining a function for factorial. Had to understand and lookup recursion for
2. # this example.
3. a **=** int(input("Enter the Number for Factorial: "))
4. **def** factorial(x):
5. **if** x**==**1:
6. **return** 1
7. **else**:
8. **return**(x**\***factorial(x**-**1))
9. print(factorial(a))

Output:

1. runcell(0, 'F:/Masters/Semester 1/Advanced Programming for Python/Assignment/Assignment#1/Factorial\_Calculation.py')
2. Enter the Number **for** Factorial: 5
3. 120
5. runcell(0, 'F:/Masters/Semester 1/Advanced Programming for Python/Assignment/Assignment#1/Factorial\_Calculation.py')
6. Enter the Number **for** Factorial: 7
7. 5040

# Fibonacci Sequence

Code:

1. # Going to print the first 20 digits of the fibonacci sequence
2. a **=** 0
3. b **=** 1
4. **for** i **in** range (0,20):
5. c **=** a **+** b
6. a **=** b
7. b **=** c
8. i **+=** 1
9. print(c)

Output:

1. runcell(0, 'F:/Masters/Semester 1/Advanced Programming for Python/Assignment/Assignment#1/Fibonacci\_Sequence.py')
2. 1
3. 2
4. 3
5. 5
6. 8
7. 13
8. 21
9. 34
10. 55
11. 89
12. 144
13. 233
14. 377
15. 610
16. 987
17. 1597
18. 2584
19. 4181
20. 6765
21. 10946

# String Operations

Code:

1. name **=** "Daud Raza"
2. # Checking len() command
3. print(len(name))
4. # Checking substring function
5. print(name[0:4])
6. print(name[5:9])
7. print(name[0:9:2])
8. # Checking concatenation of strings
9. field **=** "Engineering"
10. task **=** name **+** " works in " **+** field
11. print(task)

Output:

1. runfile('F:/Masters/Semester 1/Advanced Programming for Python/Assignment/Assignment#1/String\_test.py', wdir**=**'F:/Masters/Semester 1/Advanced Programming for Python/Assignment/Assignment#1')
2. 9
3. Daud
4. Raza
5. Du aa
6. Daud Raza works **in** Engineering

# Pathfinding for Free Food

Diagram

Description automatically generated with medium confidence

Right

Front

Right

Left

Front

Front

Code:

1. free\_food **=** 0
2. **while** free\_food **==** 0:
3. end **=** input("Are you at the location of the Free Food? Type Y/N ")
4. **if** end **==** "Y" **or** end **==** "y":
5. print("Congrats! you have arrived!")
6. **break**
7. **elif** end **==**"N" **or** end **==**"n":
8. move\_right **=** input("Is the location towards the right? Type Y/N ")
9. **if** move\_right **==** "Y" **or** move\_right **==**"y":
10. print("Move towards the right")
11. end
12. **if** end **==** "Y" **or** end **==** "y":
13. print("Congrats! you have arrived!")
14. **break**
15. **elif** move\_right **==**"N" **or** move\_right **==**"n":
16. move\_forward **=** input("Is the location towards the front? Type Y/N ")
17. **if** move\_forward**==** "Y" **or** move\_forward**==**"y":
18. print("Move forward")
19. end
20. **if** end **==** "Y" **or** end **==** "y":
21. print("Congrats! you have arrived!")
22. **break**
23. **elif** move\_forward **==**"N" **or** move\_forward **==**"n":
24. move\_left **=** input("Is the location towards the left? Type Y/N ")
25. **if** move\_left**==** "Y" **or** move\_left**==**"y":
26. print("Move towards the left")
27. end
28. **if** end **==** "Y" **or** end **==** "y":
29. print("Congrats! you have arrived!")
30. **break**
31. **elif** move\_left **==**"N" **or** move\_left **==**"n":
32. print("All paths are blocked, move back!")

Output:

1. runcell(0, 'F:/Masters/Semester 1/Advanced Programming for Python/Assignment/Assignment#1/Path\_finding.py')
2. Are you at the location of the Free Food? Type Y**/**N n
3. Is the location towards the right? Type Y**/**N n
4. Is the location towards the front? Type Y**/**N y
5. Move forward
6. Are you at the location of the Free Food? Type Y**/**N n
7. Is the location towards the right? Type Y**/**N n
8. Is the location towards the front? Type Y**/**N y
9. Move forward
10. Are you at the location of the Free Food? Type Y**/**N n
11. Is the location towards the right? Type Y**/**N y
12. Move towards the right
13. Are you at the location of the Free Food? Type Y**/**N n
14. Is the location towards the right? Type Y**/**N n
15. Is the location towards the front? Type Y**/**N y
16. Move forward
17. Are you at the location of the Free Food? Type Y**/**N n
18. Is the location towards the right? Type Y**/**N n
19. Is the location towards the front? Type Y**/**N n
20. Is the location towards the left? Type Y**/**N y
21. Move towards the left
22. Are you at the location of the Free Food? Type Y**/**N n
23. Is the location towards the right? Type Y**/**N y
24. Move towards the right
25. Are you at the location of the Free Food? Type Y**/**N y
26. Congrats! you have arrived!