

# Python

Python Module 2 Lesson 3



Name: \_\_\_\_\_

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## Recap:

1. Pattern sequence with practice  
- for loops, range, list and list indexing
2. Functions and for loops

## Learning Outcomes:

1. Functions with 2 or more arguments
2. Introduction to append
3. Pattern and Open ended Questions, and the Data Flow

## Breakdown of Lesson Plan:

Recap Lesson 2 Quiz	25 minutes
Lesson 3.1 (Basic Functions and For Loops)	15 min
Lesson 3.2 (Append)	15 mins
Lesson 3.3 (Pattern and Open Ended Questions) Get the students to explain the thought process of their codes	10 mins
Lesson 3 Quiz	25 min

*\*Note: There is a high chance of student not being able to complete on time.*

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## Recap Lesson 2

Question 1:

Caleb tracks the number of customers that arrives to his shop every day. On Day 1 of March, there were 10 customers. He knows that the number of customers increases by 2 times each day.

- i) Write a function that prints the number of customers present each day for the first 10 days of March. Your answer should be in the format:

“On Day 1, Caleb has 10 customers.”

“On Day 2 Caleb has 20 customers.”

“On Day 3, Caleb has 40 customers.”

“On Day 4, Caleb has 80 customers.”

.  
. .  
.

“On day 10, Caleb has 5120 customers.”

- iii) Run the function for different months with different number of customers on the first day.

Different Months	Number of customers on First day
April	2
May	20

Question 2:

Janice is observing the amount of water in a bucket. She wants to know how much water is in the bucket for the duration of 1 minute (60 seconds), based on the flow rate shown below (litres per second).

- i) Write a function that can print the amount of water in the bucket after each second. Your answer should be in the format:

“After \_\_\_\_ seconds, there is \_\_\_\_ litres of water.”

- ii) Run the function with the following parameters:

Cases	Flow Rate (litres per second)
Case A	0.1
Case B	0.7

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## Recap Lesson 2

Question 3:

Define a function to calculate the volume of a regular cube with sides of x cm.

Use the function and for loops to find and print the volume of the cube of different sizes for x = 5,10,15...30

Question 4:

John runs a business and keeps 2 simple lists. He recorded the following for year 2020 in the following list

revenue = [10,40,70,60,80,100,120,30,10,40,10,20]

expenses = [10,20,30,30,100,50,30,50,10,30,10,20]

Formula: Income= Revenue - expenses

The index of each list corresponds to each of the month.

- a) Define a function that takes in 2 arguments and prints the total amount of income that John has for each month
- b) Use the function to print the total income for year 2020.

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## Recap Lesson 2

Question 5:

Given the follow sequence: 2,4,6,8,10,12....

Calculate the sum of the 100th to the 150th term of the sequence.

Hint: We will need to convert the sequence above to a range.

Sequence= range(2,350,2)

Question 6:

Given the following list, list6 = [2,3,4,6,5,4,8,5,6,9,3,8,3,5,7,6] Calculate and print the sum of every alternate term starting from the first term.

The answer will be

$$2+4 = \mathbf{6}$$

$$4+5 = \mathbf{9}$$

$$5+8 = \mathbf{13}$$

$$8+6 = \mathbf{14}$$

Question 7:

Find the outputs of the sum of the sequence: 1+2+3+4+5+6 + ....+ 20

The answer will be (as per bold)

$$1+2 = \mathbf{3}$$

$$1+2+3 = \mathbf{5}$$

$$1+2+3+4 = \mathbf{10}$$

$$1+2+3+4+5 = \mathbf{15}$$

$$1+2+3+4+5+6 = \mathbf{21}$$

.

.

.

$$1+2+3+4+5+.....+20=$$

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## Recap Lesson 2

Question 8:

John has 100 dollars in his bank account.

He performs the following transactions as recorded by, transactions = [20,-1,30,-1,40].

Positive numbers represent deposits of money into his account while negative numbers represent spending.

Using for loops, find the balance in his bank account after each transaction and print in the format.

“The balance in his bank account is 188”

Question 9: Using for loops, range, indexing, complete the following task.

You are given a list of numbers with list name called list3 where list3=[10,200,10,400,50,60,400]

You need to print out the values of the sum of the current element and the previous element in list3.

1<sup>st</sup> term = 10+200

2<sup>nd</sup> term = 200 + 10

3<sup>rd</sup> term = 10+400

.

.

.

.

Task 10:

Find the value of the 50<sup>th</sup> and 65<sup>th</sup> term in the range(100).

Print in the format “The answer is 113”

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In Lesson 2, we had learnt to combine functions with for loops. In the following tasks, we will be seeing 2 or more arguments in the function throughout the for loops.

## Output

1	def funct(x,y):
2	for num in range(y):
3	x *= y
4	print(x)
5	
6	funct(1,4)

1	
2	
3	
4	

## Output

1	def funct(x,y):
2	for num in range(x,y):
3	x *= y
4	print(x)
5	
6	funct(1,4)

1	
2	
3	

--

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### Task 3:

## Output

1	
2	
3	
4	

### Task 4:

## Output

1	
2	
3	
4	

**Task 3, 4: Take note of line 3. Explain the difference and explain the python sequence**

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## Lesson 3.1

In Task 7,8,9, we will be having 3 arguments.

Task 7:

Output

1	def funct(x,y,z):
2	for num in range(z):
3	x += y
4	print(x)
5	
6	funct(2,4,6)

1	
---	--

Task 8:

Output

1	def funct(x,y,z):
2	Total = 0
3	for num in range(z):
4	Total += x*y
5	print(Total)
6	
7	funct(6,2,5)

1	
---	--

Task 9:

Output

1	def funct(x,y,z):
2	Total = 0
3	for num in range(y):
4	Total += num*x*z
5	print(Total)
6	
7	funct(3,7,1)

1	
---	--



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## Lesson 3.1

In lesson 2, we had learnt about accessing elements in 1 list. In the tasks below, we will be accessing elements from more than 1 list.

Task 10a:

You are given a list of numbers with list name called numbers where numberslist= [10,20,10,40]

You are given a list of names with list name called names where nameslist= ["A", "B", "C", "D"]

Using for loops and indexing, print the following in the output

(Complete line 4)

Output

1	numberslist= [10,20,10,40]	1	10 A
2	nameslist= ["A", "B", "C", "D"]	2	20 B
3		3	10 C
4	for i in range( )::	4	40 D
5	print(numberslist[i],nameslist[i])		

Task 10a: Take note of line 4. Explain the answer.

--

Task 10b:

With the same data as above, write the code to get the following output below. ( The answer has additional information in bold)

Output

1		1	<b>1</b> 10 A
2		2	<b>2</b> 20 B
3		3	<b>3</b> 10 C
4		4	<b>4</b> 40 D
5			

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## Lesson 3.1

Task 11:

Jane received her grades in 3 different lists as below which corresponds in the order

Subject=["Chinese", "Maths", "Science", "English"]

Grade= ["A", "C", "B", "A"]

Number=[1,5,3,2]

Using for loops and indexing, print the following in the output

Output

1	
2	
3	
4	
5	

1	Chinese A 1
2	Maths C 5
3	Science B 3
4	English A 2

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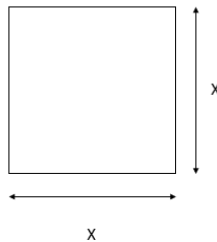
Date: \_\_\_\_\_

## Lesson 3.1

Task 12a:

Eli was instructed to paint **squares** of different sizes with length of 1m, 2m, 10m, 14m, 15m without overlapping. He needs to find out the amount of surface area he needs to paint. Calculate the total surface area he needs to paint.

STEP 1: Define a function to calculate the area of each Square.



1	def square(x):
2	return x * x

STEP 2: Create a list that contains the length of each squares to be painted.

1	length = [1,2,10,14,15]
---	-------------------------

STEP 3: Using Loop to calculate the total surface area. (Take note on line 7, Explain why is it range(5))?

1	length = [1,2,10,14,15]
2	
3	def square(x):
4	return x * x
5	
6	totalSurfaceArea = 0
7	for i in range(5):
8	totalSurfaceArea += square(length[i])
9	print("Total Surface Area =", totalSurfaceArea)

Output

1	
---	--

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## Lesson 3.1

Task 12b:

There is no change to Task 10a, now Eli would like to find out the area of each individual square he has to paint with different length. Print it in the format in the output as follows:

(Complete line 6,7,8)

1	length = [1,2,10,14,15]
2	
3	def square(x):
4	return x * x
5	
6	for i in range(    ):
7	
8	

Output

1	The surface area of each square is 1
2	The surface area of each square is 4
3	The surface area of each square is 100
4	The surface area of each square is 196
5	The surface area of each square is 225

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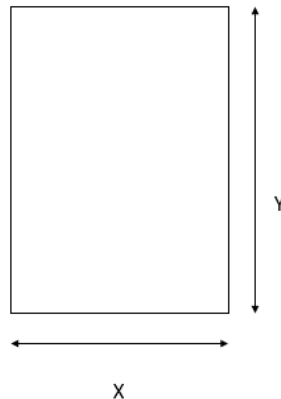
Date: \_\_\_\_\_

## Lesson 3.1

Task 13:

Oliver was instructed to paint **rectangles** of different sizes of length x breadth as follows: 10x3 20x5 30x4 40x5 50x6 60x10 without overlapping. He needs to find out the amount of surface area he needs to paint. Calculate the total surface area he needs to paint.

STEP 1: Define function to calculate the area of each rectangle. **Fill in Line 2.**



1	def rectangle(x, y):
2	<b>return</b>

STEP 2: Create lists that contain the length of each squares to be painted.

1	length = [10,20,30,40,50,60]
2	breadth = [3,5,4,5,6,10]

STEP 3: Using Loop to calculate the total surface area. (Complete line 4 and 7)

1	length = [1,2,3,4,5]
2	breadth = [2,3,4,5,6]
3	def rectangle(x, y):
4	<b>return</b>
5	
6	totalSurfaceArea = 0
7	<b>for i in range(    ):</b>
8	totalSurfaceArea += rectangle(length[i], breadth[i])
9	print("Total Surface Area =", totalSurfaceArea)

Output

1	
---	--

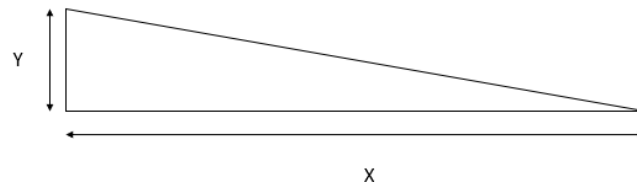
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## Lesson 3.1

Task 14:

Jovan was instructed to paint **triangles** of different sizes of base (x) x height (y) as follows: 12x2 24x3 30x4 14x4 50x2 without overlapping. He needs to find out the amount of surface area he needs to paint. Calculate the total surface area he needs to paint.



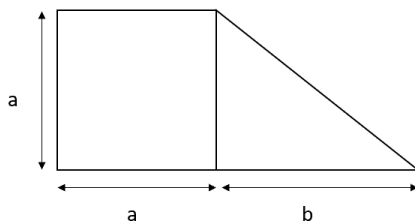
STEP 1: Define function to calculate the area of each **triangle**. (Formula:  $\frac{1}{2} * \text{base} * \text{height}$ )

STEP 2: Create lists that contain the required measurements of each triangle to be painted.

STEP 3: Using Loop to calculate the total surface area.

Task 15:

Jason was instructed to paint a **special shape containing a square and triangle** of different sizes with  $a=5,7,9$  and  $b=8,10,12$ . He needs to find the total surface area he needs to paint. Calculate the total surface area he needs to paint.



STEP 1: Define function to calculate the area of each special shape.

STEP 2: Create lists that contain the required measurements of each special shape to be painted.

STEP 3: Using Loop to calculate the total surface area.

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## Lesson 3.1

Task 16:

Valerie is tasked to paint all faces of a bag of different **unique** 6-sided dice. The bag contains dices with side length of 1.1cm, 1.2cm, 1.3cm, 1.4cm, 1.6cm.

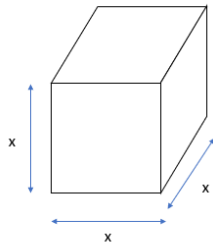


Figure 1 - 6-sided Dice

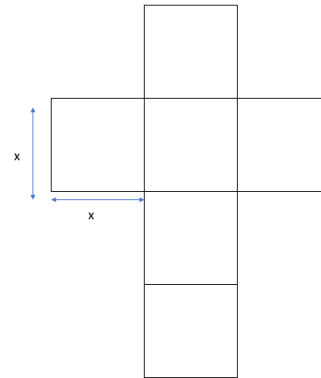


Figure 2 - Unrolled 6-sided Dice

STEP 1: Define a function to return the total surface area of the dice given a length of 1 side, x.

1	def surfaceAreaOfDice(x):
2	return x * x * 6

STEP 2: Create a list to store the length of the side of the cube.

1	length = [1.1, 1.2, 1.3, 1.4, 1.6]
---	------------------------------------

STEP 3: Using Loop to calculate the total surface area.

1	length = [1.1, 1.2, 1.3, 1.4, 1.6]
2	
3	def surfaceAreaOfDice(x):
4	return x * x * 6
5	
6	totalSurfaceArea = 0
7	for i in range(5):
8	totalSurfaceArea += surfaceAreaOfDice(length[i])
9	print("Total Surface Area =", totalSurfaceArea)

Output

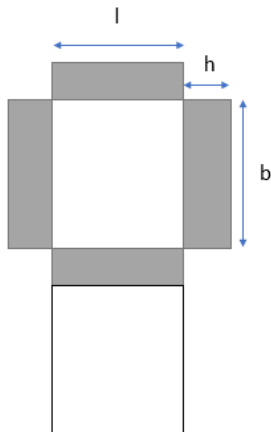
1	
---	--



## Lesson 3.1

### Task 17:

Velda has a special request to paint all faces of the bag of **unique** 6-sided **cuboid** excluding the top and bottom. The bag contains **cuboid** with sides (1, 2, 3), (2, 3, 4), (3, 4, 5) in the format of (Length, Breadth, Height). The diagram below shows how the **cuboid** is to be painted with the shaded area as the painted surfaces.



STEP 1: Define function to calculate the area of each cubiod

STEP 2: Create lists that contain the required measurements of the cubiod to be painted.

STEP 3: Using Loop to calculate the total surface area.



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## Lesson 3.1

Task 18:

Jessica is a painter and has been tasked to paint a series of 3 rooms. The rooms have a height of  $h$  meters, length of  $l$  meters and breath of  $b$  meters. For every 10 square meters that needs to be painted, 1 litre of paint is used.

- a. Define a function to calculate the total wall area that to be painted for a single room.
- b. Calculate the number of litres of paint Jessica needs in total to paint the 3 rooms

Room A (Length 10m x Breath 20m x Height 4m)

Room B (Length 5m x Breath 3m x Height 2.5m)

Room C (Length 7m x Breath 8m x Height 3.5m).

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## Lesson 3.2

The `append()` method appends an element to the end of the list.

Python Syntax

***list.append(element)***

Task 1: Adding 1 item to the existing list

1	Fruits=["apple", "orange", "pear"]
2	Fruits.append("mango")
3	print(Fruits)

Output

1	
---	--

Task 2: Adding a list to the existing list

1	Fruits=["apple", "orange", "pear"]
2	Cars=["BMW", "Toyota", "Honda"]
3	Fruits.append(Cars)
4	print(Fruits)

Output

1	
---	--

Task 3: Adding a list to the existing list

1	Fruits=["apple", "orange", "pear"]
2	Cars=["BMW", "Toyota", "Honda"]
3	Cars.append(Fruits)
4	print(Cars)

Output

1	
---	--

**Task 2, 3: Take note of line 3. Explain the difference.**

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### Task 3a: Adding more than 1 list to the existing list just using append

Output

1	list1=list(range(1,5))
2	list2=list(range(1,5))
3	list3=list(range(1,5))
4	list1.append(list2)
5	list1.append(list3)
6	print(list1)

1	
---	--

Recap indexing. In this task, we will be using for loops to create the same output as above

1	list1=list(range(1,5))
2	for i in range(8):
3	list1.append(list1[i])
4	print(list1)

1	
---	--

[illegible]

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## Lesson 3.2

Task 4. Adding a specific number in the range to the existing list using append and indexing.

In this task, using append, we would like to add 2 from the range(1,10) to the list, named list1.

Output

1	list1=list(range(1,10))
2	list1.append(list1[1])
3	print(list1)

1	
---	--

Task 4: Take note of line 2. Explain why is the index 1.

--

Task 5a

Create a list of 18 elements with the numbers 1,2,3,4,5,6,1,2,3,4,5,6... repeating using for loops, append and indexing. The answer will be 1,2,3,4,5,6, 1,2,3,4,5,6, 1,2,3,4,5,6

Output

1	
2	
3	
4	

1	1,2,3,4,5,6,1,2,3,4,5,6, 1,2,3,4,5,6
---	--------------------------------------

Task 5b

As in Task 5a, create a list of 100 elements the numbers 1,2,3,4,5,6,1,2,3,4,5,6... repeating using for loops. Use len() to check if your list has 100 elements

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## Lesson 3.3

### Task 1

Given `NumberSequence1 = [1,2,3,4,5,6,7,8,9,10]`. Create a new list of numbers *NewNumberSequence1* containing all the **EVEN** terms of `NumberSequence1`. Print *NewNumberSequence1*.

Recall creating `NumberSequence1`.

1	<code>NumberSequence1 = list(range(1,11))</code>
---	--

Create a new empty list, *NewNumberSequence1*, to contain all the even terms of `NumberSequence1`.

1	<code>NewNumberSequence1 = []</code>
---	--------------------------------------

What are the even terms of `NumberSequence1`?

2, 4, 6, 8, 10
----------------

How do we get all the even terms of `NumberSequence1`? What is the pattern?

<div><div>1      2      3      4      5      6      7      8      9      10</div><p>We start from <b>2</b>.</p><p>To get the next term, we jump right by <b>2 positions</b>.</p><p>To get the following term, we jump right by <b>2 positions</b>.</p><p>When we <u>start from 2</u>, we are starting with a <b>starting</b> position <b>1</b>.</p><p>When we <u>jump right by 2 positions</u>, we are taking a <b>step</b> of <b>2</b>.</p></div>
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## Lesson 3.3

Combining the steps above, we can use For-Loop as shown in Line 4 to Line 7.

1	NumberSequence1 = list(range(1,11))
2	NewNumberSequence1 = []
3	<div>Starting position                      step</div>
4	for i in range(1,11,2):
5	NewNumberSequence1.append(NumberSequence1[i])
6	
7	print(NewNumberSequence1)
8	

Elaboration on the variables:

*Starting position* – contains the current position of the list to be read. (As above, it is 1)

*step* – contains the step to be taken to get the next position. (As above, it is 2)

*NumberSequence1[current]* - points to the number in the NumberSequence1 List at the *current* position. (As above, it is i)

Elaboration on the Lines of Code:

Line 6

append() is used to add a new number to the back the list.

Example:

1	List1 = [1,2,3]
2	List1.append(4)
3	print(List1)
4	print(List1[1])

1	[1, 2, 3, 4]
2	2

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## Lesson 3.3

### Task 2

Given `NumberSequence2 = [1,2,3,4,5,6,7,8,9,10]`. Create a new list of numbers *NewNumberSequence2* containing all the **ODD** terms of `NumberSequence2`. Print *NewNumberSequence2*.

What is your expected output? \_\_\_\_\_

What is your starting position? \_\_\_\_\_

What is your step? \_\_\_\_\_

1	<code>NumberSequence2 = list(range(1,11))</code>
2	<code>NewNumberSequence2 = []</code>
3	
4	<code>For pos in range(0,10,2):</code>
5	<code>    NewNumberSequence2.append(NumberSequence2[pos])</code>
7	
8	<code>print(NewNumberSequence2)</code>
9	

<i><b>For-Loop</b></i>	<b>Value of <i>pos</i></b>	<b>Value of <code>NumberSequence2[pos]</code></b>	<b>Value of <code>NewNumberSequence2</code></b>
1			
2			
3			
4			
5			

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## Lesson 3.3

### Task 3

Given `NumberSequence3 = [11,15,19,23,27,31,35,39,43,47, 51]`. Create a new list of numbers *NewNumberSequence3* containing all the **EVEN TERMS** of `NumberSequence3`. Print *NewNumberSequence3*.

Is **Even Term** the same as **Even Number**?

Base on your understanding past 2 lessons, how do you create `NumberSequence3`?

What is your expected output? \_\_\_\_\_

What is your starting position? \_\_\_\_\_

What is your step? \_\_\_\_\_

1	<code>NumberSequence3 =</code>
2	<code>NewNumberSequence3 = []</code>
3	
4	<code>for pos in range( ):</code>
5	<code>    NewNumberSequence3.append(NumberSequence3[pos])</code>
6	
7	<code>print(NewNumberSequence3)</code>
8	

<b><i>For-Loop</i></b>	<b><i>Value of pos</i></b>	<b><i>Value of NumberSequence3[pos]</i></b>
0 (Before entering the loop)		
1		
2		
3		
4		
5		



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## Lesson 3.3

### Task 4

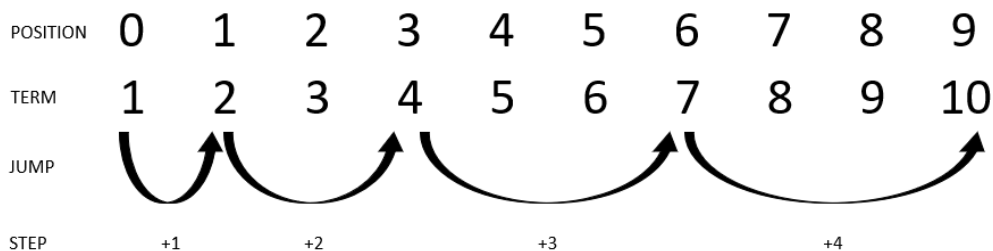
Given `NumberSequence4 = [21, 30, 39, 48, 57, 66, 75, 84, 93]`. Create a new list of numbers `NewNumberSequence4` containing all the **EVEN TERMS** of `NumberSequence4`. Print `NewNumberSequence4`.

### Task 5

Given `NumberSequence5 = [21, 30, 39, 48, 57, 66, 75, 84, 93]`. Create a new list of numbers `NewNumberSequence5` containing all the **ODD TERMS** of `NumberSequence5`. Print `NewNumberSequence5`.

### Task 6

Given `NumberSequence6 = [1,2,3,4,5,6,7,8,9,10]`. Create a new list of numbers `NewNumberSequence6` that contains `[1, 2, 4, 6]`. Print `NewNumberSequence6`.



What is your expected output? \_\_\_\_\_

What is your starting position? \_\_\_\_\_

Does your step change? \_\_\_\_\_

How does the step change? \_\_\_\_\_

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## Lesson 3.3

### Task 7

Given `NumberSequence7 = [1,2,3,4...500]`. Create a new list of numbers *NewNumberSequence7* containing the 1st, 2nd, 4th, 7th, 11th, 16th... terms of *NumberSequence7*.

What is your expected output? \_\_\_\_\_

What is your starting position? \_\_\_\_\_

Does your step change? \_\_\_\_\_

How does the step change? \_\_\_\_\_

### Output

1	<code>s7 = list(range(1,501))</code>
2	<code>ns7 = []</code>
3	
4	<code>for i in range( )::</code>
5	<code>    ns7.append(s7[i])</code>
8	
9	<code>print(ns7)</code>

1	[1, 2, 4, 7, 11, 16, 22, 29, 37, 46, 56, 67, 79, 92, 106, 121, 137, 154, 172, 191, 211, 232, 254, 277, 301, 326, 352, 379, 407, 436, 466]
---	---

Name:

Date:

## Lesson 3.3

### Task 8 (String Processing)

Given that you received a String that contains a name and age in the format of "Name,Age". How do we divide the string into 2 sub-strings – *name* & *age*? **USE STRING SLICING.** *Age* is assumed to be a 2-digit whole number.

1	data = "Robert,27"
2	name = data[:-3]
3	age = data[-2:]
4	print("Welcome", name)
5	print("Your age is", age)

### Task 9 (String Processing)

Given that you received a String that contains a name and class in the format of "studentName,className". How do we divide the string into 2 sub-strings – *name* & *class*?

1	data = "Lily,A"
2	studentName = data[:-2]
3	className = data[-1:]
4	print("Name:", studentName)
5	print("Class:", className )

### Task 10 (String Processing)

Given that you received a String that contains a Fruit and Quantity in the format of "Fruit, Quantity". How do we divide the string into 2 sub-strings – *Fruit* & *Quantity*?

1	data = "Banana,100"
2	fruit =
3	quantity =
4	print("Name:", fruit)
5	print(" Quantity :", quantity)

### Task 11 (String Processing)

Given that you received a String that contains a Item and Quantity in the format of "Item,Quantity". How do we divide the string into 2 sub-strings – *Item* & *Quantity*.

1	data = "Books,2359"
2	item =
3	quantity =
4	print("Item:", item)
5	print("Quantity:", quantity)

# Python

Python Module 2 Lesson 3



Name: \_\_\_\_\_

Date: \_\_\_\_\_

## Lesson 3.3

### Task 12

We will now combine functions and for loops with string processing.

You are given a list of grocery items with their amount in the list named `grocery list` where

```
grocerylist = ["Apple 8", "Orange 2", "Pear 4", "Grapes 5"]
```

Step 1: Create 2 functions *getName()* and *getAmount()*

Step 2: Create 2 new lists named

```
fruitname = []
```

```
fruitamount = []
```

Step 3:

Using loops, create and **print** 2 lists, one with the fruit's names, and the other with the corresponding amount.

1	<code>data = ["Apple 8", "Orange 2", "Pear 4", "Grapes 5"]</code>
2	
3	<code>def getName(x):</code>
4	<code>    return x[:-2]</code>
5	
6	<code>def getAmount(x):</code>
7	<code>    return x[-1:]</code>
8	
9	<code>fruitname=[]</code>
10	<code>fruitamount=[]</code>
11	
12	<code>for i in data:</code>
13	<code>    fruitname.append(getname(i))</code>
14	<code>    fruitamount.append(getAmount(i))</code>
15	
16	<code>print(fruitname)</code>
17	<code>print(fruitamount)</code>

# Python

Python Module 2 Lesson 3

Name:

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## Lesson 3.3

### Task 13a

Joseph is a teacher with a class of 3 students who had just taken an exam. The grades from the school's computer system is given as:

```
data = ['Ben 80', 'Alex 70', 'James 55']
```

Create a function, getName(), that returns the name of the student given the data.

Create a function, getScore(), that returns the score of the student **in integer** given the data.

Using loops, create and **print** 2 lists, one with the student's names, and the other with their corresponding scores. (Complete line 4 and 7)

Output

1	data = ['Ben 80', 'Alex 70', 'James 55']
2	
3	def getName(x):
4	return
5	
6	def getScore(x):
7	return
8	
9	name = []
10	score = []
11	
12	for i in data:
13	name.append(getName(i))
14	score.append(getScore(i))
15	
16	print(name)
17	print(score)

1	
2	

**Task 13a: What is the data type of your score? Is it an integer or a string?**

--

### Task 13b

What if we would like to change the datatype in 12a? Edit line 14.

## Python

Python Module 2 Lesson 3

Name:

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### Lesson 3.3

#### Task 14

You are given the data of the inventory of fruits. From the data, you notice that it is written as a list ['Apple 5', 'Banana 3', 'Cherry 8'] in the format of 'Fruit Quantity'. The Quantity of each Fruit is assumed to be less than 10 (i.e single digit). Using functions and loops, print out a list of fruits in the inventory and print out the **total number of fruits** in the inventory.

Expected Output:

1	['Apple', 'Banana', 'Cherry']
2	16

#### Task 15

You are given the data of the inventory of fruits. From the data, you notice that it is written as a list ['Apple 200', 'Banana 300', 'Cherry 100'] in the format of 'Fruit Weight'. The Weight of each Fruit is assumed to be 3-digits. Using functions and loops, print out a list of fruits in the inventory and print out the **total** weight of fruits in the inventory,

Expected Output:

1	['Apple', 'Banana', 'Cherry']
2	600

# Python

Python Module 2 Lesson 3



Name: \_\_\_\_\_

Date: \_\_\_\_\_

## Lesson 3.3

### Task 4a

PizzaShed sells square shaped pizzas of 3 different sizes of length 3cm, 6cm and 4cm. Prices of the 3 pizzas are \$36, \$72, \$56 for the 3 respective sizes.

Jane wants to order a pizza for her parent's birthday party, however she is unable to decide on which size is the most worthwhile.

Use for loops to help Jane calculate the price per square cm in order to help her in her decision.

Formulas:

area = length \* length

price per square cm = price of pizza/area of square

Store your answers in a list. (complete line 5, 6,7)

1	sizes = [3,6,4]
2	price = [36,72,56]
3	pricepersqcm = []
4	
5	for i in range(        ):
6	area =
7	pricepersqcm.append(
8	print(pricepersqcm)

Output

1	[4.0,2.0,3.5]
---	---------------

### Task 4b

With the same sizes and pricing as above. Joseph decides to buy 5 pizzas with length 3cm, 10 pizzas with length 6cm and 2 pizzas with length 4cm.

Using for loops and indexing, find the total amount he has to pay and print "He has to pay \$1012"

1	sizes = [3,6,4]
2	price = [36,72,56]
3	Quantity = [5,10,2]
4	
5	
6	
7	
8	

Output

1	He has to pay \$1012
---	----------------------

# Python

Python Module 2 Lesson 3



Name:

Date:

## Lesson 3.3

### Task 5a

James has a group of students who took an exam with a total score of 150. The students raw scores are given in the following list:

```
rawscore = [15,50,100,75,5,150,50]
```

Use for loops calculate each students' percentage score and store the percentage scores in a list.

Formula = (rawscore/total score ) \* 100

1	rawscore = [15,50,100,75,5,150,50]
2	Percentagescore = [ ]
3	
4	
5	
6	

### Output

1	[10.0,33.33333333333333,66.66666666666666,50.0,3.3333333333333335,100.0,33.33333333333333]
---	--

### Task 5b

James has another class with a smarter group of students who took an exam with a total score of 150. The students raw scores are given in the following list:

```
rawscoresmart = [150,100,100,75,150,150,150]
```

Use for loops calculate the difference in the scores between the 2 class of students and store them in a list.

Formula = rawscore-rawscoresmart

1	rawscore = [15,50,100,75,5,150,50]
2	rawscoresmart=[150,100,100,75,150,150,150]
3	
4	
5	
6	

### Output

1	
---	--



# Python

Python Module 2 Lesson 3



Name: \_\_\_\_\_

Date: \_\_\_\_\_

## Lesson 3.3

Task 6:

Farmer Jack owns a farm that produces 500 tonnes of turnips a year. Farmer Jack knows 3 markets that he can sell to. He wants to know how much money he would earn from each market after varying number of years.

Edit the function below to find the amount of money Farmer Jack earns after the required number of years if he sells to Market A for \$1000 per tonne, Market B for \$950 per tonne and Market C for \$1050 per tonne.

Market	Price (per tonne)	Number of Years
A	\$1000	15
B	\$950	10
C	\$1050	5

Output

1	def farmer(price,years):
2	Total = 0
3	for num in range(____):
4	Total+=500*____
5	print(____)
6	
7	farmer(
7	farmer(
8	farmer(

1	
2	
3	

## Python

Python Module 2 Lesson 3



Name: \_\_\_\_\_

Date: \_\_\_\_\_

### Lesson 3.3

Task 7:

Johan tracks the amount of water used by his family. He notices that, on average, his family uses 1000 litres of water per day. Johan knows they can choose either Company A, B or C to pay the water bills (their cost per litre is shown below).

Company	Company A	Company B	Company C
Cost per Litre	\$0.01	\$0.015	\$0.02

Johan wants to know the amount of money needed to spend in all 3 companies for the months of January (31 days), March (31 days) and June (31 days).

Write a function to find the expected water bill for each of the 3 companies. Print your answer in the format below:

“For Company \_\_\_, Johan will need to pay \$\_\_\_ in the month of \_\_\_.”

(HINT: You will need to call the function a total of 9 times.)

# Python

Python Module 2 Lesson 3



Name: \_\_\_\_\_

Date: \_\_\_\_\_

## End of Lesson 3 Quiz

### Question 1

Mr Lim has a list of numbers named list1 from 1 to 50.

He would like to generate a list named list2 to double the numbers from list1.

Use for loops, converting range to list and append, generate list2.

### Question 2

Mr Tan has a group of underweight students. The healthy weight is 30. The students' weight are given in the following list:

```
underweights = [22,12,10,5,16,7]
```

```
percentageweight = [ _____ ]
```

Use for loops to calculate each students' weight in relation to the healthy weight and store it as percentage in a list named percentageweight

(Formula = (underweight/healthy weight) \*100)

### Question 3

Brownie Bakers sells square shaped brownies of 5 different sizes of length 30cm, 35cm, 5cm, 15cm and 40cm. Prices of the 5 brownies are \$50, \$40, \$15, \$25, \$70 for the 5 respective sizes.

Mr Seah wants to order a brownie for her daughter's birthday party, however she is unable to decide on which size is the most worthwhile. Use for loops to help Mr Seah calculate the price per square cm in order to help her in her decision.

Store your answers in a list.

### Question 4

Competitor BrownieBetter Bakers sells their own version of square shaped brownies of 5 different sizes of length 30cm, 35cm, 5cm, 15cm and 40cm. Prices of the 5 brownies are \$10, \$20, \$5, \$35, \$55 for the 5 respective sizes.

Mr Seah decides to order 1 of each size for his company's party. Using for loops, indexing and storing the information in a list, Find the total amount he would need to pay.

# Python

Python Module 2 Lesson 3

Name:

Date:



---

## End of Lesson 3 Quiz

### Question 5

You are given a list of shopping items with their amount in the list named shoppinglist where

shoppinglist = ["pens 80", "pencils 20", "erasers 40", "markers 50", "rulers 10"]

Using functions, for loops and append, create and **print** 2 lists, one with the item's names, and the other with the corresponding amount.

# Python

Python Module 2 Lesson 3



Name: \_\_\_\_\_

Date: \_\_\_\_\_

## End of Lesson 3 Quiz

### Question 6

Given the `NumberSequence8 = [123,234,345,456,567,678,789]`.

Create a new list of numbers *NewNumberSequence8* that contains [444, 666, 888, 1110, 1332, 1554, 1776].

Term    Number

1st     123+321   =444

2nd     234+432   =666

3<sup>rd</sup>     345+543   =888

4<sup>th</sup>     456+654   =1110

...

7<sup>th</sup>     789+987=

Create the list, `NumberSequence8` with [123,234,345,456,567,678,789].

1	<code>NumberSequence8 = [123, 234 ,345, 456 ,567,678, 789]</code>
---	---

Create an empty list, `NewNumberSequence8`.

2	<code>NewNumberSequence8 =</code>
---	-----------------------------------

From a number 123 (int),

We need to create another number 321 (int). 123 is the reverse of 321.

1	<code>number = 123</code>
2	<code>reverse =</code>

# Python

Python Module 2 Lesson 3

Name:

Date:



## End of Lesson 3 Quiz (Bonus Question)

Full Code:

1	NumberSequence8 = [123, 234 ,345, 456 ,567,678, 789]
2	NewNumberSequence8 = []
3	for number in NumberSequence8:
4	reversed = int(str(number)[::-1])
5	NewNumberSequence8.append(number + reversed)
6	print(NewNumberSequence8)