Lesson 2 Exercise

1. Given the code below:

names = ["Alan", "Peter", "John"]

* Write the code to add "Mary" to the end of list
* Write the code to add "Bob" as the first item of the list
* Write the code to remove "Peter" from the list
* Write the code to remove the 2nd item from the current list
* Write the code to print out the number of people in the list.

1. Write the code to generate and print the numbers in the sample output using a **while** loop.

|  |  |
| --- | --- |
| (a) Increasing Numbers | (b) Decreasing Numbers |
|  |  |

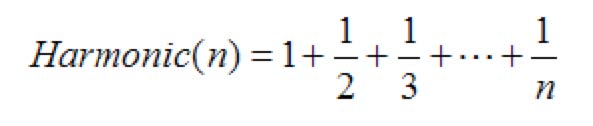
1. Write the code to generate and print the numbers in the sample output using a **for** loop.

|  |  |
| --- | --- |
| (a) Increasing Numbers | (b) Decreasing Numbers |
|  |  |

1. Write the codes to produce the following patterns using ***for-loop*** with the input n.

|  |  |
| --- | --- |
| a. n=5  A picture containing keyboard  Description automatically generated | b. n=5  A close up of a device  Description automatically generated |
| c. n=5  A close up of a keyboard  Description automatically generated | d. n=5  A picture containing video, room, monitor, screen  Description automatically generated |

1. Write a program called HarmonicSum to compute the sum of a harmonic series, as shown below, where **n**=50000.



1. animals = ["fish","cat","dog","lion","tiger","mouse","cow"]

Using a **for** loop,

* print all the animals.
* print the list in reverse order
* print all the animals with 3 letters.

1. Write a program to read in 5 numbers into a list and print the largest, lowest and average of that 5 numbers.
2. Write a program to keep reading in numbers into a list until the user enter a letter q. Print the largest, lowest, average and sample standard deviation of all the numbers.
3. What **type** of variable will result from each of the following:

|  |
| --- |
| var1 = 10 +12 |
| var2 = 10.0 + 12 |
| var3 = 10.2 + 2 |
| var4 = ‘apple’ + orange’ |
| var5 = ‘345’ + ‘667’ |
| var6 = 10 – 2 |
| var7 = 10.0 – 2 |
| var8 = 10.2 – 2 |
| var9 = 10\*2 |
| var10 = 10.0\*2 |
| var11 = 10.2\*2 |
| var12 = 5/2 |
| var13 = 4/2 |
| var14 = 5/2.0 |
| var15 = 4.0/2 |
| var16 = 10 // 3 |
| var17 = 10 // 3.0 |
| var18 = 10 // 3.2 |
| var19 = 3\*\*4 |
| var20 = 3\*\*4.0 |
| var21 = 61<50 and 1>0 |
| var22 = num1>30 and num1<50 |
| var23 = [1,2,3,4] |

1. Consider the following code and modify as per instructions below.

|  |
| --- |
| instring = input("Enter the string....") |

* Convert the string input (instring) to lower case.
* Print every 3rd letter in the string starting from 3rd letter, going **forwards using while loop**.

(“FOP1005 – Fundamentals of Programming” would become “P0-uanloPgmn”)

* Print string going **reverse with slicing**, starting from 2nd last letter ending at 2nd letter and printing every fifth letter.

(“F**O**P1005 – Fundamentals of Programming” would become “nr lmF0”)

1. Consider the following code and modify as per instructions below.

|  |
| --- |
| instring = input("Enter the string....") |

* Convert instring to uppercase
* Print the string going **forwards with for-range**, starting at the third letter and printing every fourth letter

("A moose once bit my sister" would become "MECIYS")

* Print the string going **forwards with slicing**, starting at the fourth letter, ending at the second-last letter and printing every third letter  
  ("A moose once bit my sister" would become "OEN TYIE")

1. Refer to the code below:

* The bucket list is used to store a list of items enter by the user.
* The user can choose to add new item (A) to the list or print all the items in the list (L).
* The user can choose to exit the application by selecting X.
* Complete the code below

A computer code with text

Description automatically generated with medium confidence

Enhance the code:

* The user can enter lower- or upper-case letter for all the choice.
* The user can choose to delete an item from the bucket list. If the item is not in the list, display an error message.

1. Refer to the code below:

* The biscuits list is a list that store various type of biscuits (e.g. Monte Carlo, Shortbread Cream)
* The user can keep getting a random biscuit from the biscuits list until the user choose to exit.
* The random selected biscuit will be removed from the list.
* Before the application exits, it will display the number of biscuits left in the list.
* Complete the code below

A white text on a white background

Description automatically generated

Enhance the code:

* Within the while loop, the user can choose to add in a new biscuit name with the required quantity into the biscuits list.

1. The following code shows a 2D list to represent a bookshelf.

Each row in the bookshelf consists of many books title.

A text on a white background

AI-generated content may be incorrect.

Write Python code to allow.

1. User to enter a bookshelf number and display all the books in that bookshelf.
2. User to enter a book title, display where the book is (row number and which slot) on the bookshelf.
3. User to enter a new book title and bookshelf number, add that new book title to that bookshelf number.
4. User to enter a book title, remove that book title from the bookshelf.

Suitable error checking (e.g. invalid bookshelf number or title) should also be implemented.