



## Assessment Task: Lab 8

<b>Qualification national code and title</b>	22603VIC Certificate IV in Cybersecurity
<b>Unit/s national code/s and title/s</b>	ICTPRG434 - Automate processes ICTPRG435 - Write script for software applications

### Assessment type (☑):

- ☐ Questioning (Oral/Written)
- ☐ Practical Demonstration
- ☐ 3<sup>rd</sup> Party Report
- ☒ Other – Lab

### Assessment Resources:

The base requirements this assessment task include:

- IDE or editor for developing Python programs (*only IDLE and PyCharm supported by the college*)
- Access to Office 365 & Microsoft Word
- Virtual machine

*You may not need all these for every part in this assessment*

### Assessment Due :

This assessment is due after the weekly session, **Week 8, Friday 17:00.**

### Assessment Instructions:

1. Your code must be written in IDLE or PyCharm IDEs. If you are using a different IDEs or a different structure for your application, then assistance from your lecturers may be limited (at best). Discuss with your lecturer before straying too far off the path!
2. All resources used should be referenced with the question. Answers may not be copied and pasted from any resource. All answers must be reworded to display your understanding.
3. You may only use Python functionality, methods and libraries which were taught in this unit.
4. First line of code in a program should have the student's name and number, as proof of authenticity.
5. Screenshots of all programs must be included in this document, with the appropriate question.
6. Screenshots of testing, showing your code works as intended, should be included with the relevant question.
7. Python programs should be named: `XXX_Lab##_SYY_QZZ`
  - Replace `XXX` with your initials
  - Replace `##_` with Lab number
  - Replace `YY` with Section number,
  - Replace `ZZ` with Question number
8. It is a submission requirement that all screen shots be signed in some way. Some acceptable examples of signed screen shots are shown below.



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```

IDLE Shell 3.10.6
File Edit Shell Debug Options Window Help
Python 3.10.6 (main, Nov 14 2022, 16:10:14) [GCC 11.3.0] on linux
Type "help", "copyright", "credits" or "license()" for more information.
>>> 1+1
2
>>> "bob" * 5
'bobbbobbbob'
>>> True and False
False
>>>
  
```

A simple drawing tool signature is visible over the code output.

**Example 1:** Signed using a simple drawing tool.

```

IDLE Shell 3.10.6
File Edit Shell Debug Options Window Help
Python 3.10.6 (main, Nov 14 2022, 16:10:14) [GCC 11.3.0] on linux
Type "help", "copyright", "credits" or "license()" for more information.
>>> 1+1
2
>>> "bob" * 5
'bobbbobbbob'
>>> True and False
False
>>>
  
```

A large orange watermark reading "EXAMPLE SIGNATURE" is overlaid on the code output.

**Example 2:** Water marked signature.

```

JW_Lab01_S2_Q3.py - C:/Users/.../Desktop/JW_Lab01_S2_Q3.py (3.11.0)
File Edit Format Run Options Window Help
#Student Name: John Williams Student number: 20065987
number = 1 + 2
print("Number is", number)
  
```

The student name "John Williams" and student number "20065987" are highlighted with blue boxes.

**Example 3:** Program named as prescribed, as well as first line comment with student name and number. Program saved as pre-described.

- All python programs must be included in the submission, as well as this document.

### Assessment Instrument:



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### Section 1: Working with lists

Lists are a sequence of values (like strings). Unlike strings, lists can be comprised of more than one type of variable. Run the following exercises in the Python shell/interpreter.

1. Create the list in the image and assign the four assorted colours into the list

```
>>> a_list = []
>>> a_list.append("Red")
>>> a_list.append("Blue")
>>> a_list.append("Green")
>>> a_list.append("Orange")
```

2. What is the index value of **Blue**?

**Screenshot:**

```
5 a_list = []
6 a_list.append("Red")
7 a_list.append("Blue")
8 a_list.append("Green")
9 a_list.append("Orange")
10
11 print(a_list.index("Blue"))
12
```

PROBLEMS OUTPUT DEBUG CONSOLE **TERMINAL** PORTS

PS C:\Users\rajib\OneDrive\Documents\tafe-python> & ajib/OneDrive/Documents/tafe-python/lab-8.py

1

PS C:\Users\rajib\OneDrive\Documents\tafe-python>

3. Add the values **Purple** and **Cyan** to the list.  
Print the list to demonstrate, Purple and Cyan were added to the list

**Screenshot:**

```
5 a_list = []
6 a_list.append("Red")
7 a_list.append("Blue")
8 a_list.append("Green")
9 a_list.append("Orange")
10 a_list.append("Purple")
11 a_list.append("Cyan")
12
```

PROBLEMS OUTPUT DEBUG CONSOLE **TERMINAL** PORTS GIT

PS C:\Users\rajib\OneDrive\Documents\tafe-python> & C:/U  
ajib/OneDrive/Documents/tafe-python/lab-8.py

['Red', 'Blue', 'Green', 'Orange', 'Purple', 'Cyan']

PS C:\Users\rajib\OneDrive\Documents\tafe-python>

4. Remove the value **Blue** from the list.  
Print the list to demonstrate, Blue was removed from the list

**Screenshot:**



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```

5  a_list = []
6  a_list.append("Red")
7  a_list.append("Blue")
8  a_list.append("Green")
9  a_list.append("Orange")
10 a_list.append("Purple")
11 a_list.append("Cyan")
12 a_list.remove("Blue")

```

PROBLEMS OUTPUT DEBUG CONSOLE **TERMINAL** PORTS GIT

```

PS C:\Users\rajib\OneDrive\Documents\tafe-python> & C:/U
ajib/OneDrive/Documents/tafe-python/lab-8.py
['Red', 'Green', 'Orange', 'Purple', 'Cyan']
PS C:\Users\rajib\OneDrive\Documents\tafe-python>

```

5. [Sort](#) the list and print it to demonstrate the sorting worked.

**Screenshot:**

```

5  a_list = []
6  a_list.append("Red")
7  a_list.append("Green")
8  a_list.append("Orange")
9  a_list.append("Purple")
10 a_list.append("Cyan")
11 a_list.sort()
12 print(a_list)

```

PROBLEMS OUTPUT DEBUG CONSOLE **TERMINAL** PORTS GIT

```

PS C:\Users\rajib\OneDrive\Documents\tafe-python> & C:/U
ajib/OneDrive/Documents/tafe-python/lab-8.py
['Cyan', 'Green', 'Orange', 'Purple', 'Red']
PS C:\Users\rajib\OneDrive\Documents\tafe-python>

```

6. [Insert](#) the value **Yellow** into index position 1 and print it back to demonstrate the value is in the correct position.

**Screenshot:**



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```

5  a_list = []
6  a_list.append("Red")
7  a_list.append("Green")
8  a_list.append("Orange")
9  a_list.append("Purple")
10 a_list.append("Cyan")
11 a_list.insert(1, "Yellow")
12 print(a_list)

```

PROBLEMS OUTPUT DEBUG CONSOLE **TERMINAL** PORTS GITL

```

PS C:\Users\rajib\OneDrive\Documents\tafe-python> & C:/
ajib/OneDrive/Documents/tafe-python/lab-8.py
['Red', 'Yellow', 'Green', 'Orange', 'Purple', 'Cyan']
PS C:\Users\rajib\OneDrive\Documents\tafe-python>

```

7. Lastly, demonstrate how to create a new list from a string by entering the following code:

- `x = "a big string of many words to become a list"`
- `y = x.split(" ")`
- `print(y)`
- `type(y)`
- `z = " ".join(y)`
- `print(z)`

**Screenshot:**

```

5  x = "a big string of many words to become a list"
6  y = x.split(" ")
7  print(y)
8  type(y)
9  z = " ".join(y)
10 print(z)
11

```

PROBLEMS OUTPUT DEBUG CONSOLE **TERMINAL** PORTS GITLENS POLYGLOT NOTEBOOK

```

PS C:\Users\rajib\OneDrive\Documents\tafe-python> & C:/Users/rajib/AppData/L
ajib/OneDrive/Documents/tafe-python/lab-8.py
['a', 'big', 'string', 'of', 'many', 'words', 'to', 'become', 'a', 'list']
a big string of many words to become a list
PS C:\Users\rajib\OneDrive\Documents\tafe-python>

```



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### Section 2: Slicing and using functions on a list

Complete the following tasks using the interpreter.

1. Create a new list called **num** and add the integers 1, 50, 23, 77, 12, 23, 57, 2 and 7.
2. Print only the first value in the list.

#### Screenshot

```

5 num = [1, 50, 23, 77, 12, 23, 57, 2, 7]
6 print(num[0])
7 |

```

RHK

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS GITLENS

PS C:\Users\rajib\OneDrive\Documents\tafe-python> & C:/Users\rajib/OneDrive/Documents/tafe-python/lab-8.py

1

PS C:\Users\rajib\OneDrive\Documents\tafe-python>

3. Print the maximum value in the list using a list method.

#### Screenshot

```

5 num = [1, 50, 23, 77, 12, 23, 57, 2, 7]
6 print(max(num))
7 |

```

RHK

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS GITLENS

PS C:\Users\rajib\OneDrive\Documents\tafe-python> & C:/Users\rajib/OneDrive/Documents/tafe-python/lab-8.py

77

PS C:\Users\rajib\OneDrive\Documents\tafe-python>

4. Print the minimum value in the list using a list method.

#### Screenshot

```

5 num = [1, 50, 23, 77, 12, 23, 57, 2, 7]
6 print(min(num))
7 |

```

RHK

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS GITLENS

PS C:\Users\rajib\OneDrive\Documents\tafe-python> & C:/Users\rajib/OneDrive/Documents/tafe-python/lab-8.py

1

PS C:\Users\rajib\OneDrive\Documents\tafe-python>

5. Print **[23, 77, 12]**.

#### Screenshot





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```

5  print([23, 72, 12])
6
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  GIT
PS C:\Users\rajib\OneDrive\Documents\tafe-python> & C:/
ajib/OneDrive/Documents/tafe-python/lab-8.py
[23, 72, 12]
PS C:\Users\rajib\OneDrive\Documents\tafe-python>

```



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### Section 3: Working with a list

Complete the following tasks using the interpreter.

- In the Python interpreter, create a new list with at least seven movies.

```
aMovieList = []
aMovieList.append("Terminator 2")
aMovieList.append("Grave of the Fireflies")
aMovieList.append("Back to the Future")
aMovieList.append("Alien")
aMovieList.append("What we do in the Shadows")
aMovieList.append("Aqua Teen Hunger Force Colon Movie Film for Theaters")
aMovieList.append("Coraline")
```

- Print the list back.

#### Screenshot

```
5 aMovieList = []
6 aMovieList.append("Terminator 2")
7 aMovieList.append("Grave of the Fireflies")
8 aMovieList.append("Back to the Future")
9 aMovieList.append("Alien")
10 aMovieList.append("What we do in the Shadows")
11 aMovieList.append("Aqua Teen Hunger Force Colon Movie Film for Theaters")
12 aMovieList.append("Coraline")
13
14 print(aMovieList)
```

PS C:\Users\rajib\OneDrive\Documents\tafe-python> & C:/Users/rajib/AppData/Local/Programs/Python/Python311/python.exe c:/Users/r  
ajib/OneDrive/Documents/tafe-python/lab-8.py  
['Terminator 2', 'Grave of the Fireflies', 'Back to the Future', 'Alien', 'What we do in the Shadows', 'Aqua Teen Hunger Force C  
olon Movie Film for Theaters', 'Coraline']  
PS C:\Users\rajib\OneDrive\Documents\tafe-python>

- Use a **loop** to collect **input** from the user to add seven more movies to the list.
- Print the complete list back.

#### Screenshot

```
16 counter = 0
17 while counter < 8:
18     movie = input("Please enter a movie name: ")
19     if movie.strip():
20         aMovieList.append(movie)
21         print(f"{movie} entered in the movie list.")
22         counter += 1
23 print(aMovieList)
```

PS C:\Users\rajib\OneDrive\Documents\tafe-python> & C:/Users/rajib/AppData/Local/Programs/Python/Python311/python.exe c:/Users/r  
ajib/OneDrive/Documents/tafe-python/lab-8.py  
Please enter a movie name: Ami  
Ami entered in the movie list.  
Please enter a movie name: Tumi  
Tumi entered in the movie list.  
Please enter a movie name: Tomra  
Tomra entered in the movie list.  
Please enter a movie name: Amra  
Amra entered in the movie list.  
Please enter a movie name: Tara  
Tara entered in the movie list.  
Please enter a movie name: Tahara  
Tahara entered in the movie list.  
Please enter a movie name: Tora  
Tora entered in the movie list.  
['Terminator 2', 'Grave of the Fireflies', 'Back to the Future', 'Alien', 'What we do in the Shadows', 'Aqua Teen Hunger Force C  
olon Movie Film for Theaters', 'Coraline', 'Ami', 'Tumi', 'Tomra', 'Amra', 'Tara', 'Tahara', 'Tora']

- Remove a movie from the list using the **input** function to ask the user which movie to remove.



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### Screenshot

```
24 rem_mov = input("Please enter the name of the movie you want to remove: ")
25 if aMovieList.count(rem_mov.strip()) > 0:
26     aMovieList.remove(rem_mov)
27     print(f"{rem_mov} removed from the list")
28 else:
29     print(f"{rem_mov} does not exist in the movie list")
30 print(aMovieList)
31
32 # print([22, 22, 12])
```

Ami entered in the movie list.  
Please enter a movie name: Tumi  
Tumi entered in the movie list.  
Please enter a movie name: Amra  
Amra entered in the movie list.  
Please enter a movie name: Tomra  
Tomra entered in the movie list.  
Please enter a movie name: Tara  
Tara entered in the movie list.  
Please enter a movie name: Tahara  
Tahara entered in the movie list.  
Please enter a movie name: Apnara  
Apnara entered in the movie list.  
Please enter the name of the movie you want to remove: Ami  
Ami removed from the list  
[Terminator 2', 'Grave of the Fireflies', 'Back to the Future', 'Alien', 'What we do in the Shadows', 'Aqua Teen Hunger Force C  
olon Movie Film for Theatres', 'Coraline', 'Tumi', 'Amra', 'Tomra', 'Tahara', 'Apnara']  
PS C:\Users\rajib\OneDrive\Documents>tafe-python>

7. Use the **input** function to ask the user for a movie. Give a message to the user, indicating if the movie exists **in** the list or not. Show both possible outcomes.

### Screenshot

```
32 search_mov = input("Please enter the name of the movie you want to search: ")
33 if aMovieList.count(search_mov.strip()) > 0:
34     print(f"{search_mov} movie exist in the list")
35 else:
36     print(f"{search_mov} does not exist in the movie list")
37
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS GITLENS POLYGLOT NOTEBOOK

```
PS C:\Users\rajib\OneDrive\Documents\tafe-python> & C:/Users/rajib/AppData/Local/Programs/Python/
ajib/OneDrive/Documents/tafe-python/lab-8.py
Please enter the name of the movie you want to search: Coraline
Coraline movie exist in the list
PS C:\Users\rajib\OneDrive\Documents\tafe-python>
```

```
32 search_mov = input("Please enter the name of the movie you want to search: ")
33 if aMovieList.count(search_mov.strip()) > 0:
34     print(f"{search_mov} movie exist in the list")
35 else:
36     print(f"{search_mov} does not exist in the movie list")
37
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS GITLENS POLYGLOT NOTEBOOK

PS C:\Users\rajib\OneDrive\Documents\tafe-python> & C:\Users\rajib\AppData\Local\Programs\Python\Python38-64\python.exe C:\Users\rajib\OneDrive\Documents\tafe-python\lab-8.py

Please enter the name of the movie you want to search: Ami

Ami does not exist in the movie list

PS C:\Users\rajib\OneDrive\Documents\tafe-python> |



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8. Open a new file in **write** mode and save the movie list to a file.
9. Show the file contains the movies within your operating system.

### Code Screenshot

```
lab-8.py U X  movie-list.txt M
lab-8.py > ...
17 while counter < 8:
18     movie = input("Please enter a movie name: ")
19     if movie.strip():
20         aMovieList.append(movie)
21         print(f"{movie} entered in the movie list.")
22         counter += 1
23
24 with open("movie-list.txt", "w") as f:
25     for m in aMovieList:
26         f.write(m + "\n")
27
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS GITLENS POL

```
PS C:\Users\rajib\OneDrive\Documents\tafe-python> & C:/Users/rajib/OneDrive/Documents/tafe-python/lab-8.py
Please enter a movie name: Ami
Ami entered in the movie list.
Please enter a movie name: Tumi
Tumi entered in the movie list.
Please enter a movie name: Tomra
Tomra entered in the movie list.
Please enter a movie name: tara
tara entered in the movie list.
Please enter a movie name: Tora
Tora entered in the movie list.
Please enter a movie name: Sara
Sara entered in the movie list.
Please enter a movie name: Para
Para entered in the movie list.
PS C:\Users\rajib\OneDrive\Documents\tafe-python> 
```

### File Screenshot

```
lab-8.py U  movie-list.txt M X
movie-list.txt
You, 1 minute ago | 1 author (You)
1 Terminator 2 You, 1 minute ago * Uncommitted cha
2 Grave of the Fireflies
3 Back to the Future
4 Alien
5 What we do in the Shadows
6 Aqua Teen Hunger Force Colon Movie Film for Theatres
7 Coraline
8 Ami
9 Tumi
10 Tomra
11 tara
12 Tora
13 Sara
14 Para
15
```



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### Section 4: Tuples

Tuples are sometimes used in place of lists. Answer the following questions and complete the following tasks in the interpreter.

1. What makes a Tuple different from a list?

Tuple is unchangeable & written in round brackets

2. What is an advantage to using a Tuple over a list?

Python can optimize memory allocation for tuples because they are immutable, which could result in somewhat faster iteration and access times than lists, particularly when working with huge datasets.

3. Create a Tuple with five of your favourite songs and print it back.

```
5 favSongs = ("Ami", "Tumi", "Amra", "Tomra", "Tara")
6 print(favSongs)
7
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS GITLENS POLYGL

PS C:\Users\rajib\OneDrive\Documents\tafe-python> & C:/Users/rajib/ajib/OneDrive/Documents/tafe-python/lab-8.py  
( 'Ami', 'Tumi', 'Amra', 'Tomra', 'Tara' )

PS C:\Users\rajib\OneDrive\Documents\tafe-python>

RHK

4. Use a loop to display all the items in the tuple.

```
5 favSongs = ("Ami", "Tumi", "Amra", "Tomra", "Tara")
6 |
7 for i in favSongs:
8 |     print(i)
9 |
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS GITLENS POLYGL

PS C:\Users\rajib\OneDrive\Documents\tafe-python> & C:/Users/rajib/ajib/OneDrive/Documents/tafe-python/lab-8.py  
Ami  
Tumi  
Amra  
Tomra  
Tara

PS C:\Users\rajib\OneDrive\Documents\tafe-python>

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5. Can Tuple items be updated, changed, or deleted?

No



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### Section 5: A challenge

Complete the following challenge by creating code and demonstrating its functionality.  
You are required to create a small script that will create a list of friend's names from a user's input.  
The script must do the following:

- Use a menu system.
- Run under an endless loop until the user decides to quit.
- Allow the user to add friends to their list.
- Allow the user to print back the list of friends.
- Allow the user to delete a friend from the list.
- The script must account for all situations by gracefully handling invalid input from the user (blank spaces or wrong case input for menu selection for example).
- A friend's name must be:
  - A single name
  - Made up of letters from the alphabet
  - Be capitalised – that is the first letter must be uppercase, and the remaining letters must be lowercase

A demo screen shot of a functioning solution is provided here.

```
Welcome to the friend engine!
Choices are [E] to exit, [A]dd/[D]elete a friend or [P]rint all friends: A
Input a name to add to the list: Bob
Added Bob to the list!

Choices are [E] to exit, [A]dd/[D]elete a friend or [P]rint all friends: A
Input a name to add to the list: 123456
You entered an invalid name, please try again.

Choices are [E] to exit, [A]dd/[D]elete a friend or [P]rint all friends: A
Input a name to add to the list: Linda
Added Linda to the list!

Choices are [E] to exit, [A]dd/[D]elete a friend or [P]rint all friends: P
['Bob', 'Linda']

Choices are [E] to exit, [A]dd/[D]elete a friend or [P]rint all friends: D
Input a name to delete: Bob
Deleted Bob from the list!

Choices are [E] to exit, [A]dd/[D]elete a friend or [P]rint all friends: D
Input a name to delete: Bob
Could not delete there was an error: list.remove(x): x not in list

Choices are [E] to exit, [A]dd/[D]elete a friend or [P]rint all friends: e
Have a nice day
```

Note: The output “Could not delete there was an error:” must show the actual error thrown. The command

```
print('Could not delete there was an error: list.remove(x): x not in list')
```

is not the correct way to do this.



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You must use the start code file on BlackBoard.

**Note:** To be marked as satisfactory for this task, your solution must:

- To demonstrate your ability to control output, your final output must be formatted the same way as the example screen shot.
- Contain adequate internal commenting to be read and understood by a third party.
- Demonstrate through screen shots, that your solution addresses all the above points.
- You must submit the code file with this document.

### Code:

```

lab-8.py U  Lab 08 - Starter code.py X  movie-list.txt M
> Users > rajib > Downloads > Lab 08 - Starter code.py > ...
21
22 # Print the list
23 elif choice.upper() == "P":
24     # ---> Write code to print the list here <---
25     print(friendsList) # printing the friend list
26     continue
27
28 # Add friend to list
29 elif choice.upper() == "A":
30     # ---> Write code to add to the list here <---
31     # getting user input for friend name to add friend
32     friendName = input("Input a name to add to the list: ")
33     if friendName.strip() and friendName.isalpha(): # validating the user input
34         # adding the name to the list
35         friendsList.append(friendName.capitalize())
36         # printing success message
37         print(f"Added {friendName} to the list!")
38     else:
39         # printing error message
40         print("You entered an invalid name, please try again.")
41     continue
42
43 # Delete from list
44 elif choice.upper() == "D":
45     # ---> Write code to delete from the list here <---
46     # getting user input for friend name to remove friend
47     removeName = input("Input a name to delete: ")
48     if removeName.strip() and removeName.isalpha() and friendsList.count(removeName) > 0: # validating the user input
49         # adding the name from the list
50         friendsList.remove(removeName.capitalize())
51         # printing success message
52         print(f"Deleted {removeName} from the list!")
53     else:
54         print(
55             f"Could not delete there was an error: {removeName} not found in the list!") # printing error message
56     continue
57
58 # Everything else must be invalid.
59 else:
60     print("You made an invalid choice")
61
  
```

### Program output:





## Assessment Task: Lab 8

<b>Qualification national code and title</b>	22603VIC Certificate IV in Cybersecurity
<b>Unit/s national code/s and title/s</b>	ICTPRG434 - Automate processes ICTPRG435 - Write script for software applications

```

Welcome to the friend engine!
Choices are [E] to exit, [A]dd/[D]elete a friend or [P]rint all friends: A
Input a name to add to the list: Bob
Added Bob to the list!
Choices are [E] to exit, [A]dd/[D]elete a friend or [P]rint all friends: A
Input a name to add to the list: 123456
You entered an invalid name, please try again.
Choices are [E] to exit, [A]dd/[D]elete a friend or [P]rint all friends: A
Input a name to add to the list: Linda
Added Linda to the list!
Choices are [E] to exit, [A]dd/[D]elete a friend or [P]rint all friends: P
['Bob', 'Linda']
Choices are [E] to exit, [A]dd/[D]elete a friend or [P]rint all friends: D
Input a name to delete: Bob
Deleted Bob from the list!
Choices are [E] to exit, [A]dd/[D]elete a friend or [P]rint all friends: D
Input a name to delete: Bob
Could not delete there was an error: Bob not found in the list!
Choices are [E] to exit, [A]dd/[D]elete a friend or [P]rint all friends: e
Have a nice day
PS C:\Users\rajib\OneDrive\Documents\tafe-python>

```

RHK