

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

Assessment type	(☑):
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	Questioning (Oral/Written)
	Practical Demonstration
	3 rd Party Report
\boxtimes	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

RTO Code 52786 CRICOS Code: 00020G

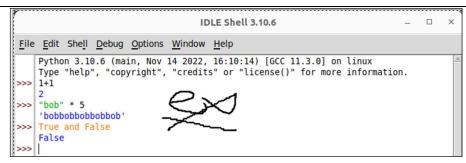
Replace YY with Section number,

Replace **ZZ** with Question number

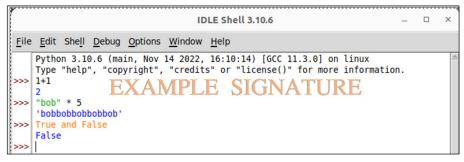
8. It is a submission requirement that all screen shots be signed in some way. Some acceptable examples of signed screen shots are shown below.



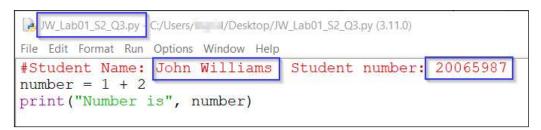
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Example 1: Signed using a simple drawing tool.



Example 2: Water marked signature.



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

9. 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("Green")
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> & 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("Red")
8 a_list.append("Green")
9 a_list.append("Orange")
10 a_list.append("Cyan")
11 a_list.append("Cyan")
12

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS GITLE

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. <u>Sort</u> 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 GITLE
PS C:\Users\rajib\OneDrive\Documents\tafe-python> & C:\Users\rajib\OneDrive\Documents\tafe-python> locuments\tafe-python> C:\Users\rajib\OneDrive\Documents\tafe-python>
['Cyan', 'Green', 'Orange', 'Purple', 'Red']
PS C:\Users\rajib\OneDrive\Documents\tafe-python>
```

6. <u>Insert</u> 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.insert[[1, "Yellow"]]
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:
 - a. x = "a big string of many words to become a list"
 - b. y = x.split(" ")
 - c. print(y)
 - d. type(y)
 - e. z = " ".join(y)
 - f. 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/Lo
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

```
print(num[0])
print(num[0])
problems OUTPUT DEBUG CONSOLE TERMINAL PORTS GITLENS

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

```
print(max(num))
problems output debug console terminal ports gittens

PS C:\Users\rajib\OneDrive\Documents\tafe-python> & C:/Use
ajib/OneDrive/Documents/tafe-python> & C:/Use
colored by the color of the color
```

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

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS GITLENS

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

1
PS C:\Users\rajib\OneDrive\Documents\tafe-python>
```

Print [23, 77, 12].

Screenshot



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Section 3: Working with a list

Complete the following tasks using the interpreter.

1. 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")
```

2. Print the list back.

Screenshot

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

Screenshot

```
16 counter = 1
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(f(movie)) entered in the movie list.")
23 print(f(movie)) entered in the movie list.")
24 counter *= 1
25 print(f(movie)) entered in the movie list.")
25 print(f(movie)) entered in the movie list.
26 print(movie) entered in the movie list.
27 Please enter a movie name: Tona
10 lease entered in the movie list.
27 Please enter a movie name: Tona
10 lease entered in the movie list.
28 Please enter a movie name: Tona
10 lease entered in the movie list.
29 lease enter a movie name: Tona
10 lease entered in the movie list.
20 lease entere a movie name: Tona
10 lease entered in the movie list.
20 lease enter a movie name: Tona
10 lease entered in the movie list.
29 lease enter a movie name: Tona
10 lease entere a movie name: Tona
11 lease entered in the movie list.
12 lease entere a movie name: Tona
13 lease entered in the movie list.
14 lease entered la the movie list.
15 lease entered la th
```

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

Current Template Version: February 2020 Assessment task last updated:



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Print the complete list back.
 Screenshot

```
rem_mov = input("Please enter the name of the movie you want to remove: ")

if aMovieList.count(rem_mov.strip()) > 0:

aMovieList.remove(rem_mov)

print(f"(rem_mov) removed from the list")

else:

print(f"(rem_mov) does not exist in the movie list")

print(f"(rem_mov) does not exist 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: Tana

Tana entered in the movie list.

Please enter a movie name: Tana

Tana entered in the movie list.

Please enter a movie name: Tana

Tana entered in the movie list.

Please enter a movie name: Tana

Tana entered in the movie list.

Please enter a movie name: Tomra

Tana entered in the movie list.

Please enter a movie name: Tomra

Tana entered in the movie list.

Please enter a movie name: Tomra

Tana entered in the movie list.

Please enter of movie name: Tomra

Tana entered in the movie list.

Please enter of movie list.

Please enter of in the movie list.

P
```

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

```
search_mov = input("Please enter the name of the movie you want to search:
     if aMovieList.count(search_mov.strip()) > 0:
         print(f"{search_mov} movie exist in the list")
      else:
          print(f"{search_mov} does not exist in the movie list")
Problems output debug-console terminal ports gitlens polyglot-notebook
PS C:\Users\rajib\OneDrive\Documents\tafe-python> & C:/Users\rajib/AppData/Local/Programs/Python/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>
       search_mov = input("Please enter the name of the movie you
      if aMovieList.count(search_mov.strip()) > 0:
          print(f"{search_mov} movie exist in the list")
        print(f"{search_mov} does not exist in the movie list")
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS GITLENS POLYGLOT NOTEBOOK
PS C:\Users\rajib\OneDrive\Documents\tafe-python> & C:\Users\rajib\AppData/Local/Programs/Py
ajib/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>
```



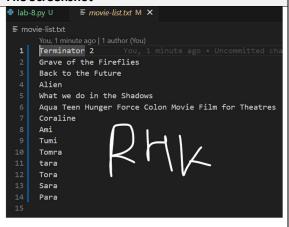
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- 8. Open a new file in **write** mode and save the movie list to a file.
- 9. Show the file contains the movies within your operating system.

Code Screenshot



File Screenshot





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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 POLYGE
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>
```

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

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
 - o 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.

RTO Code 52786 CRICOS Code: 00020G

Folder location: Click here to enter text.



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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 out put 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:

```
# Print the list
elif choice.upper() == "P":
    # ---> Write code to print the list here <---
print(friendsList) # printing the friend list
continue</pre>
elif choice.upper() == "A":
        # --> Write code to add to the list here <---
# getting user input for friend name to add friend
friendName - input("Input a name to add to the list: ")
if friendName.strip() and friendName.isalpha(): # validating the user input
                 friendsList.append(friendName.capitalize())
                printing success message
print(f"Added {friendName} to the list!")
       # printing error message
    print("You entered an invalid name, please try again.")
continue
       # ---> Write code to delete from the list here <---
# getting user input for friend name to remove friend
removeName input("Input a name to delete: ")
if removeName.strip() and removeName.isalpha() and friendsList.count(removeName) > 0: # validating the user
               # adding the name from the list
friendsList.remove(removeName.capitalize())
# printing success message
print(f"Deleted {removeName} from the list!")
```

Program output:



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