

Tutorial Letter 102/2/2019

Visual Programming 1

INF1511

Semester 2

School of Computing

IMPORTANT INFORMATION:

This tutorial letter contains **ASSIGNMENTS** for 2019 Semester 2.

All other important information is sent to your **myLife account** and is available on the module **INF1511 website**.



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Contents

Assignment Unique Numbers – INF1511 Semester 2 2019	3
Assignments – Semester 2 - Weeks - Chapters.....	3
Assignments – IMPORTANT Screen Shots	3
Assignment 01 MCQ [10] Chapter 1	4
Assignment 02 PDF [40] Chapter 1, 2, 3 and 4.....	5
Question 1 (5)	5
Question 2 (5)	5
Question 3 (5)	5
Question 4 (5)	6
Question 5 (5)	6
Question 6 (5)	7
Question 7 (10)	7
Assignment 03 MCQ [10] Chapter 5 and 6	8
Assignment 04 PDF [40] Chapters 5, 6, 7, and 8.....	9
Question 1 (10)	9
Question 2 (10)	10
Question 3 [10]	10
Question 4 (10)	11

Assignment Unique Numbers – INF1511 Semester 2 2019

General						Year Mark			
Ass. Nr.	Group	Format	Unique Nr.	Due Date	Type	Opt.	Normal weight	Repeat weight	Aegrotat weight
1 Edit	formative(F)	MCQ	879598	20190708	Individual	M	10	10	10
2 Edit	formative(F)	Written	804933	20190805	Individual	M	40	40	40
3 Edit	formative(F)	MCQ	795118	20190902	Individual	M	10	10	10
4 Edit	formative(F)	Written	776434	20190930	Individual	M	40	40	40

Assignments – Semester 2 - Weeks - Chapters

Week	Monday S2	INF1511	INF1511 Chapters	INF1511 Assignment
1	24 June	Introduction	1	Assignment 1 MCQ
2	1 July		1	
3	8 July	Programming Principles	2	Assignment 2 PDF
4	15 July		3	
5	22 July		4	
6	29 July			
7	5 Aug	Problem Solving	5	Assignment 3 MCQ
8	12 Aug		5	
9	19 Aug		6	
10	26 Aug		6	
11	2 Sept	Application	7	Assignment 4 PDF
12	9 Sept		7	
13	16 Sept		8	
14	23 Sept		8	
15	30 Sept			

Assignments – IMPORTANT Screen Shots

Where a screen shot of your code is required:

- The entire screen (PrtScreen).
- The date and time must be clearly visible.
- Your student number **MUST** be included in the file name e.g. SUM12345678.py

Assignment 01 MCQ [10] Chapter 1

Question	Options	Answers
1. Python has 30 keywords that are reserved as special case words. _____ is NOT a keyword.	1	always
	2	in
	3	return
	4	yield
2. IDLE is a simple IDE. IDLE is the abbreviation for _____	1	Integrated Design Learning Environment
	2	Integrated Development Environment
	3	Incredible Develop and Learn Environment
	4	Inter Design Learn Extension
3. Long integer is a data type. A feature of this data type is that _____	1	It has a limited range.
	2	it is 32 bits long.
	3	it has unlimited precision, subject to the memory limitations of the computer.
	4	it has a decimal point.
4. _____ can be used to represent Python strings that run over multiple lines.	1	Triple quotes
	2	Double quotes
	3	Single quotes
	4	Double double quotes
5. To interactively interact with Python, the developer can use _____	1	The command line mode.
	2	The IDLE IDE option.
	3	Either the command line mode or the IDLE IDE.
	4	The developer cannot interact with Python.
6. Python can be used for the development of _____	1	Web development only
	2	Networking and gaming only
	3	Data processing and business applications only.
	4	Webs development, networking, gaming, data processing and business applications.
7. Which of the following print statements will generate an error?	1	print(python is great)
	2	print('hello',end=' ')
	3	print()
	4	print('here today'+ ' gone tomorrow')
8. _____ is the format code to display in string format.	1	%d
	2	%e
	3	%c
	4	%s
9. Python code requires comments. Comments are _____	1	lines read only by the code interpreter.
	2	lines that contribute no value to the re-use of code.
	3	lines that are added to make code longer.
	4	lines for documentation and explanation of the code.
10. If the data type of the values in the variable does not match with the format code then _____ will occur.	1	a syntax error
	2	auto conversion of data type
	3	a compile error
	4	pickling

Assignment 02 PDF [40] Chapter 1, 2, 3 and 4

Where a screen shot of your code is required:

- The entire screen (PrtScreen). The date and time must be clearly visible.
- Your student number **MUST** be included in the file name e.g. SUM12345678.py

Question 1 (5)

Write a Python program that assigns values to an integer, string, boolean, tuple and a list variables (var1, var2, var3, var4, var5), and then displays the data types of these five variables. Save the program as typexxxxxxxxx.py and add a comment at the beginning of your program.

Required:

- Screenshot of the typexxxxxxxxx.py program. Ensure that the screenshot shows your file name that includes your student number!
- Screenshot of output.
- Code: Input.
- Code: Result.
- Comments.

Question 2 (5)

Create a Python program that accepts five integer numbers as input from the user. The program should then add the five numbers and print the sum as output, with the message “the sum of the five integer values is: “. Save the program as sumxxxxxxxx.py and add a comment at the beginning of your program.

Required:

- Screenshot of the sumxxxxxxxx.py program. Ensure that the screenshot shows your file name that includes your student number!
- Screenshot of output.
- Code: Input.
- Code: Result.
- Comments.

Question 3 (5)

Write a Python program that prompts the user to enter five floating point numbers. Count the number of floating point numbers greater than 25.5.

Required:

- Screenshot of the Countxxxxxxx.py program. Ensure that the screenshot shows your file name that includes your student number!
- Screenshot of output.
- Code: Input.
- Code: Result.
- Comments.

Question 4 (5)

Write a program that asks the user to enter five integer numbers. The program should then output the average of the numbers entered with two decimal places.

Required:

- Screenshot of the avxxxxxxx.py program. Ensure that the screenshot shows your file name that includes your student number!
- Screenshot of output.
- Code: Input.
- Code: Result.
- Comments.

Question 5 (5)

Write a Python program that prompts the user to enter a number between 1 and 7. The output is the number of the day of the week. Thus, 1 is Monday, 2 is Tuesday7 is Sunday. However, if the user enters a different number, not in the range of 1 to 7, then an error message must be displayed.

Required:

- Screenshot of the daysxxxxxxx.py program.
- Ensure that the screenshot shows your file name that includes your student number!
- Screenshot of output.
- Code: Input.
- Code: Result.
- Comments.

Question 6 (5)

Write a Python program that asks the user to enter a word and a specific letter to be replaced with the &&&& string. If the string entered does not appear in the word, print an appropriate message. Hint: - refer to built-in functions for strings.

Required:

- Screenshot of the wordxxxxxxx.py program.
- Ensure that the screenshot shows your file name that includes your student number!
- Screenshot of output.
- Code: Input.
- Code: Result.
- Comments.

Question 7 (10)

Write a Python program that will generate a comment on the grade that you (estimate) will receive for this assignment. You need to prompt the user to input the estimated grade. Recommended comments are: 0-60% "Contact your e-tutor urgently", 61-70% "chat with your e-tutor soon", 71-80% 'On track, keep going', 81-100% 'Awesome! Stay strong!!'

Required:

- Screenshot of the gradxxxxxxx.py program.
- Ensure that the screenshot shows your file name that includes your student number!
- Screenshot of output.
- Code: Input.
- Code: Result.
- Comments.

Assignment 03 MCQ [10] Chapter 5 and 6

Question	Option	Answer
1. The functions defined in a class are known as ____	1	parameters
	2	methods
	3	templates
	4	variables
2. A _____ variable is shared by all instances of a class.	1	method
	2	object
	3	parameter
	4	class
3. A class can have two types of data members. The class variable is _____	1	Defined inside a method.
	2	Only belongs to the current instance.
	3	Not affected by other instances.
	4	Outside of any method of the class. This is shared by all instances of the class.
4. Which file access mode option allows file reading only?	1	r
	2	R+
	3	read+
	4	read
5. Which file access mode option allows for the opening of a file for reading and appends the contents to the end of the file?	1	a
	2	r+
	3	AA
	4	a+
6. A class is a template of data and operations. To use the data and the operations, you need to _____.	1	Define the function.
	2	Define the method.
	3	Create an instance of the class.
	4	Pickle the method.
7. The __init__() method is the first method to be executed after the creation of an instance.	1	Arguments may or may not be passed to the __init__ method.
	2	The __init__ methods must always return a value.
	3	You cannot have a default value parameter in the __init__ method.
	4	The instance is not constructed by the time __init__ is called.
8. What will be the content of file colour.txt	1	Red Yellow Blue

Question	Option	Answer
<p>after the following code has been executed?</p> <pre>f = open("colour.txt", "w+") lst=['Red','Yellow','Blue'] f.writelines(lst) f.close()</pre>	2	Red Yellow Blue
	3	RedYellowBlue
	4	Red Yellow Blue
<p>9. Garbage collection is a procedure for _____</p>	1	assigning variables out of scope.
	2	freeing up memory used by variables and instances.
	3	Reference counter.
	4	Creating memory leaks.
<p>10. Inheritance is a technique of copying data members and member functions of an existing class to another class. The following is NOT a type of inheritance: _____</p>	1	Base inheritance
	2	Multiple inheritance
	3	Multilevel inheritance
	4	Single inheritance

Assignment 04 PDF [40] Chapters 5, 6, 7, and 8

Question 1 (10)

Create a class Student with public member variables: Student name, student number, contact number, ID number. The following specifications are required:

- Add init() method of the class that initializes string member variables to empty strings and numeric values to 0. (2)
- Add the method populate() to the class. The method is used to assign values to the member variables of the class. (2)
- Add the method display() to the class. The method is used to display the member variables of the class. (2)
- Create an instance StudentObj of the class Student in a main program. (2)
- The main program should prompt the user to enter values for five students. The attributes should be assigned to the instance of Student using its populate() method, and must be displayed using the display() method of the instance of Student. (2)

Question 2 (10)

There are three steps (open, action, close) required for handling files. You need to write a Python program what executes each of these three steps. Your program must include:

- Extensive comments to ensure explanation of your code (1).
- Open a file (file name must include your student number, thus filexxxxxxx.txt). (1).
- Write the details of the five students (from Question 1 above) to a file (3).
- Close the file. (1)
- Then open the file again (1).
- Write the contents of the file to display on the screen (3).

Question 3

[10]

Create an application using PyQt. The user is prompted for the name of an animal rescue service. This must be displayed in the UI in capital letters. The user is then required to enter a character (letter). This must also be displayed on the UI in capital letters. The application must read the name of the animal rescue service as well as the character and then count the number of occurrences of the character in the animal rescue service name. The count must be displayed.

Required:

- Screenshot of the Animalxxxxxxx.py program.
- Ensure that the screenshot shows your file name that includes your student number!
- Screenshot of output.
- Screen shot of the object inspector (all components named).
- Code: Input.
- Code: Result.
- Comments (at least 3)
- Error message for incorrect input from user (e.g. no name of animal rescue service).
- Error message of character not found or the character is blank!

Question 4 (10)

As a student you are studying. You call student snack order service (SSOS) and place an order (e.g. coffee and cheesecake). The service will then pack your order into a container, ready for collection or delivery. SSOS requires an application. You are required create the application using Qt Designer.

A student places an order (Student number, snack items, student cell-number, student location if delivery). The location can be the GPS co-ordinates. This order is added to the list ORDERS.

Once the order has been prepared, the order is 'moved' off the ORDERS list to the READY TO GO list.

Your application must include:

- The UI with two lists.
- Widgets to capture order details.
- Button to add details to ORDERS list (code must be shown). There should be at least 5 orders on this list, including YOUR student number.
- Button to add details to READY TO GO list, which also removes order from ORDERS list (code must be shown).
- Ensure that the screenshot shows your name and student number!

Assignment Evaluation Rubric				
Requirement (must be submitted)		No attempt	Partial attempt	Meets or Exceeds expectation
1	Copy & Paste a print screen of the program user interface (UI) in <u>design</u> time.	0	1	2 UI alignment and meaningful labels.
2	Copy & Paste a print screen of the object inspector listing all the widgets in your application. Must include all the components on the user interface.	0	1 some naming of widgets	2 All widgets named.
3	Copy and Paste a print screen of the program UI in <u>run time</u> showing at least 5 order entries. One of the data entries must be YOUR student number.	0	1 some entries	2 All 5 data entries AND student details. Creativity is encouraged.
4	Copy & Paste the complete code of the source code file which invokes your UI design.	0	2 some functionality and some comments.	4 Functional, profession, complete and WELL commented.

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