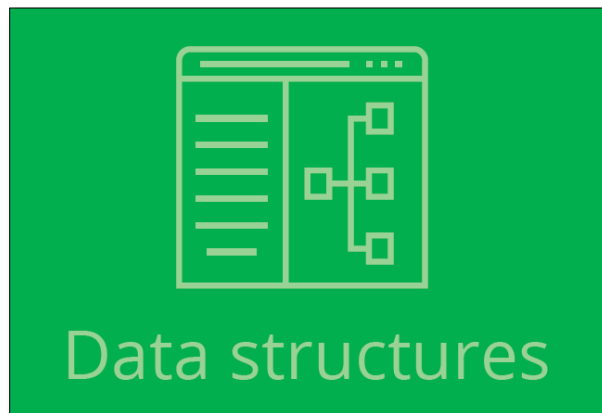# TERM 3
GRADE 11 – TASK SHEET 1

Introduction to Python

TEACHER'S GUIDELINES

Picture 1

Picture 2

IMPORTANT NOTICE

Dear teachers, in the case that your school is facing any software issues with **Python or PyCharm**, please ensure that you create a ticket by completing the online form which was sent by operations.

The link for the online form is as follows:

https://forms.office.com/Pages/ResponsePage.aspx?id=ZN_eq0qrBUuqA_TbXZ4iiz-35SJZDP1KqLNm-zZZCCdUQjBUMzkwQ0RLRFNNVVhHSENKWDFDMIFIOC4u

Task sheet 1 is both theory and practical based. As task sheet 1 is a part of the end of unit activities from Unit 5 of the book, you can make the students do the assessment as and when the concepts are covered while teaching. The following table indicates which questions to look at for each week, in order complete the entire task sheet on time (this has also been color coded on the Teacher Guidance work plan):

Teaching Week	Question to work on
WEEK 1	1
WEEK 2	2
WEEK 3	3
WEEK 4	4

You are allowed to use the book space provided for each question for practice. However, for assessment, you must provide the assessment task sheet 1 document to all student's. There can be two ways which you to maintain the students assessment work

> ## AS A HARDCOPY (printed)
>   o Here you will print the task sheet and provide each student with a copy. Make the students fill the columns as per the task sheet requirement.
>   o For any practical (coding) question, a student will type the code using the required software. They will save a copy of their code and the output generated as a screenshot. This screenshot can be printed or can be maintained as a softcopy file.
>   o The teacher will collect the hardcopy and the screenshot file(softcopy or hardcopy). This should be maintained to produce an evidence for task completion.

> ## AS A SOFTCOPY (electronic)
>   o Here you will maintain an electronic portfolio (e-portfolio) for each student. An electronic portfolio is a collection of students work completely as softcopy.
>   o The teacher will collect all student work as softcopy. This should be maintained to produce an evidence for task completion.

TASK SHEET 1

OBJECTIVE

To understand programming and debugging using the programming language Python in the PyCharm IDE. You will be applying your knowledge on **Data Structures**.
To cover the **student learning outcomes (SLO's)** from **Unit 5** of the book:

- describe lists and the operations you can carry out on them.
- describe dictionaries and operations defined on them.
- integrate selection, repetition and data structures to solve problems.

EQUIPMENT REQUIREMENTS

Laptop or Computer, Python 3.X, PyCharm / Notepad / Notepad++

TASK INTRODUCTION

To complete the task sheet, you need to perform each of the following:

1. Design a computer program to store a list of all your subjects and the grades you achieved last term. Print out your Computer Science grade and the grades for any other subjects you also like.

2. Design a computer program that allows a user to enter any popular designer brands. It should then print only elements 1 to 3 of the list.

3. Design a program in Python that will store a playlist of five of your favourite songs. It should store the singer and the title of the song. Your program should give the user the choice to print (play) songs from one singer only, or to print (play) the songs in a random order.

4. Design a Python program using a data structure to read AED-USD conversion data and print only the data for the last six months. The program will then ask the user for the months they want values for and then save the values in a file using your Python program.

TASK GUIDELINES

For each sub-task:

1. Please fill in the areas highlighted.
2. Use the space given in the work plan to write your code.
3. Type and execute your code using PyCharm software (or any other Python editor).
4. Show your output to your teacher.

   In the case where you are <u>not able </u>to show your output to your teacher:

   - save your program.
   - take a print screen of your code and an output of your code.
   - save your print screen file.

   - submit the saved file as a hardcopy or softcopy to your teacher.

TASK SHEET 1 – WORK PLAN

Teacher Guidelines:

- **Answers may vary. We request the teachers to take professional judgement for marking the project.**
- **Do not copy and paste the code provided below as the PyCharm editor may show errors. The code provided should not be given to the students, it is strictly for teacher's guidance only.**
- **This coding is provided as a part of teacher's guidance. As we are aware there is no one way of coding and coding style differs. But it is highly recommended to use the format/structure given below for a neat output generation. Maintain every student work for evidence.**

#	Work Steps	Step Completion & Values
1	**WEEK 1** Complete the following table:	0 `Maths 70` 1 `Arabic Studies 80` 2 `DT 40` 3 `Computer Science 90` 4 `CDI 70` 5 `Business 60` 6 `Life Skills 30` 7 `English 70`
| | Write the Python code that will: <br><br> 1) store all your subjects and the grades you achieved last term using the data structure list <br><br> 2) print out your 'Computer Science' grade and the grades for any other subjects you also like <br><br> <u>Please fill in the areas highlighted</u> | ```python
# School:   Example school
# Student Number (SIS):   12345678
# Student Name:   Abdullah Ahmed Mohammed Faisal
# Grade:  11 G3


# Program to store and print the subjects and the grades
achieved last term.

# Create the list
subjects = ["Maths 70", "Arabic Studies 80", "DT 40",
"Computer Science 90", "CDI 70", "Business 60", "Life Skills
30", "English 70"]

# Print the Computer Science grade and the grades of another
subject(s) you also like.

print(subjects[3])
``` |

2	**WEEK 2**		
	Complete the following table:		

0	Designer a
1	Designer b
2	Gucci
3	Designer d
4	Designer e
5	Designer f

	Write the Python code that will: 1) create an empty list data structure of popular designer brands 2) allow the user to enter the brands into the list 3) print out elements 1 to 3 of the list <u>Please fill in the areas highlighted</u>.	

```python
# School:    Example school
# Student Number (SIS):   12345678
# Student Name:    Abdullah Ahmed Mohammed Faisal
# Grade:   11 G3

# Program that allows a user to enter any popular designer
brands. It should then print only elements 1 to 3 of the
list.

# Create an empty list to store the designer brands

designers = []


# Using the input() function, prompt the user for the values
# Using the WHILE loop, add elements into the list.

finish = "no"

while finish == "no":
    brand = input("Enter a brand: ")
    designers.append(brand)
    finish = input("Are you finished?")


# Print elements 1 to 3 of the list.

print(designers[1:4])

or

print(designers[1])
print(designers[2])
print(designers[3])
```

3	**WEEK 3**

Complete the following table:

Singer	Song
Singer a	Song a
Singer b	Song b
Ahlam	Wallah Ahtagak
Singer d	Song d
Singer e	Song e

Write the Python code that will:

1) using a dictionary data structure, store the playlist of your 5 favorite songs (keep the "Ahlam" example).

2) display a menu to the user with three options, then prompt the user to choose an option:
1. Play song from one singer only
2. Play all songs in a random order
3. Exit

➢ If the user chooses option 1, then display to the user (play) the song title for "Ahlam" only.

➢ If the user chooses option 2, then display to the user (play) all the song titles in a random order

➢ If the user chooses option 3 or anything else, then exit the program

<u>Please fill in the areas highlighted</u>

```python
# School:    Example school
# Student Number (SIS):    12345678
# Student Name:    Abdullah Ahmed Mohammed Faisal
# Grade:  11 G2


# Program to store a playlist of five of your favourite
songs. It should store the singer and the title of the song.
Your program should give the user the choice to print (play)
songs from one singer only, or to print (play) the songs in a
random order

# Create the dictionary data structure to store the playlist
of your 5 favorite songs (keep the "Ahlam" example)

playlist = {"Singer a":"Song a","Singer b":"Song b",
"Ahlam":"Wallah Ahtagak", "Singer d":"Song d","Singer
e":"Song e"}


# display a menu to the user with the 3 options, then
# prompt the user to choose an option

def menu():
    choice = 0

    while choice != 3:

        print("*** Playlist menu ***")
        print("1. Play song from one singer only")
        print("2. Play all songs in a random order")
        print("3. Exit")

        choice = input("Choose your option:")
        choice = int(choice)

# Create an elif statement to run the correct menu option
# if Option 1

        if choice == 1:
            print(playlist["Ahlam"])
            menu()


# elif Option 2

        elif choice == 2:
```

```
                          print(playlist.values())
                          menu()

        #Note that 'dictionaries' are unordered, meaning that any
        time you loop through a dictionary, you will go through every
        key, but you are not guaranteed to get them in any particular
        order... so are random by default.


        # else

                else:
                    print("=======Good bye!=========")
            return 0
    menu()
```

4	**WEEK 4** Create and complete the text file to hold the data.	
	Write the Python code that will: 1) read the data from the AED-USD conversion text file, and store the data in a dictionary data structure	

AedUsdConversionData - Notepad

File Edit Format View Help
```
January 3.67292
February 3.67355
March 3.6733
April 3.673
May 3.67324
June 3.67374
July 3.673
August 3.67296
September 3.67248
October 3.67284
November 3.67253
December 3.67355
```

```
# School:    Example school
# Student Number (SIS):    12345678
# Student Name:     Abdullah Ahmed Mohammed Faisal
# Grade:   11 G2

# Program to read AED-USD conversion data and print only the
data for the last six months. The program will then ask the
user for the months they want values for and then save the
values in a file


# Open and read the data from the text file, and store them
in the dictionary data structure

conversion = {}
with open("AedUsdConversionData.txt", "r") as f:
    for line in f:
        splitLine = line.split()
        conversion[splitLine[0]] = ",".join(splitLine[1:])
```

2) display a menu to the user with four options, then prompt the user to choose an option:
1. Print the last 6 months
2. Print for a specific month
3. Save the values a different text file
4. Exit
 	
➤ If the user chooses option 1, then display to the user the conversion data for the last 6 months only.
 	
➤ If the user chooses option 2, then prompt the user for the month name, then display to the user the conversion data for the month name entered
 	
➤ If the user chooses option 3, then write all the values into a different text file, 'MyListValues.txt', using Python
 	
➤ If the user chooses option 4, or anything else then exit the program
 	
Please fill in the areas highlighted.
	``python
	# display a menu to the user with the 4 options, then
	# prompt the user to choose an option
	
	def menu():
	    choice = 0
	    while choice != 3:
	        print("*** Playlist menu ***")
	        print("1. Display to the user the conversion data for the last 6 months only.")
	        print("2. Display to the user the conversion data for the month name entered")
	        print("3. Write all the data structure values into a different text file")
	        print("4. Exit")
	
	        choice = input("Choose your option:")
	        choice = int(choice)
	``

```python
# Create an elif statement to run the correct menu option
# if Option 1

        if choice == 1:
            print("January", conversion["January"])
            print("February", conversion["February"])
            print("March", conversion["March"])
            print("April", conversion["April"])
            print("May", conversion["May"])
            print("June", conversion["June"])
            menu()
```

```python
# elif Option 2

        elif choice == 2:
            month = input("Enter the month:")
            print(conversion[month])
            menu()
```

```python
# elif Option 3

        elif choice == 3:
            outfile = open("MyListValues.txt", "w")
            outfile.write(str(conversion))
            outfile.close()
            menu()
```

```python
# else

else:
    print("=======Khalas=========")
return 0
```

Marking Rubrics

Ⓐ Check of Dimension and Function

No.	Points	0	2
1	Use of **decision statement (if-elif)** is clear.	No efforts made	Student has demonstrated in Python the use of decision statements.
2	Use of **list data structure** is clear.	No efforts made	Student has demonstrated in Python the use of list data structure.
3	Use of **control structure(while)** is clear.	No efforts made	Student has demonstrated in Python the use of control structures.
4	Use of **dictionary data structure** is clear.	No efforts made	Student has demonstrated in Python the use of dictionary data structure.
5	Use of **Read and Write operation in a text file** is clear.	No efforts made	Student has demonstrated in Python the use of read and write operation in a text file.
Maximum Achievable Points			**10**
Summarization of Actual Points			

Ⓑ Visual Checks

No.	Points	0	2
1	The decision statement is used appropriately with correct conditions.	No efforts made	The student demonstrated the decision statement appropriately with correct conditions.
2	The control structure is used with appropriate conditions.	No efforts made	The student demonstrated the control structure with appropriate conditions.
3	The list operations (create, store, print the elements) are relevant and implemented to the requirement.	No efforts made	The student demonstrated list operations (create, store, print the elements) relevant to the requirement.
4	The dictionary operations (create, store, print the elements) are relevant and implemented to the requirement.	No efforts made	The student demonstrated dictionary operations (create, store, print the elements) relevant to the requirement.
5	The text file operations (READ/WRITE) are implemented successfully.	No efforts made	The student demonstrated the text file operations (READ/WRITE) successfully.
Maximum Achievable Points		**10**	
Summarization of Actual Points			

Ⓒ Class Participation

The Class participation **10% mark** is distributed to each student on the following basis:
- **5%** - for bringing the book for each of the computer science classes until the book unit 5 is completed.
- **5%** - for completing all the activities in the book by each student.