

CSC1015F Assignment 2B (70 Marks)

Console Input/Output and Control (if)

Assignment Instructions

This assignment involves constructing Python programs that use input and output statements, 'if' and 'if-else' control flow statements, and statements that perform numerical manipulation.

You may need to use additional attributes of the print statement that control what is printed at the end of each print statement (`end="\n"`) and separating each value in a list of values (`sep=" "`). For example:

```
print ("a", "b", "c")
```

displays "a b c"

```
print ("a", "b", "c", sep="|")
```

displays "a|b|c"

NOTE Your solutions to this assignment will be evaluated for correctness. *Assignments that follow (starting with Assignment 4) will also be evaluated for the following qualities:*

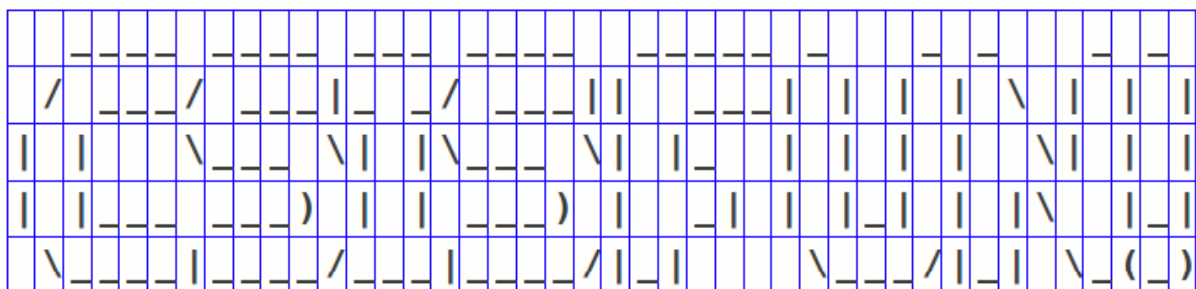
- Documentation
 - Use of comments at the top of your code to identify program purpose, author and date.
 - Use of comments within your code to explain each non-obvious functional unit of code.
- General style/readability
 - The use of meaningful names for variables and functions.
- Algorithmic qualities
 - Efficiency, simplicity

These criteria will be manually assessed by a tutor and commented upon. In future assignments, up to 10 marks will be deducted for deficiencies.

Question 1 [15 marks]

ASCII Art is a technique to create fancy effects using simple text output.

By using only print statements, write a program called 'com_sci.py' that outputs the following:



Here's the raw text for further reference:

Some of the backslashes (\) may need to be escaped (written as \\ instead). Search online to find out why this is necessary.

Write a program called 'time.py' for checking the validity of a time entered by the user as a set of three integers. In professional software, it is never assumed that input from users is valid so you too need to do this in your programs.

Sample I/O (The input from the user is shown in **bold** font):

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```
Enter the hours:
21
Enter the minutes:
7
Enter the seconds:
72
Your time is invalid.
```

Question 3 [15 marks]

Write a program called 'spam.py' to generate a personalised spam message based on the user's full name, country and a sum of money. Use the following template for the spam message, with a blank line before the message starts.

```
Dearest <first_name>
It is with a heavy heart that I inform you of the death of my father,
General Fayk <last_name>, your long lost relative from Mapsfostol.
My father left the sum of <money>USD for us, your distant cousins.
Unfortunately, we cannot access the money as it is in a bank in <country>.
I desperately need your assistance to access this money.
I will even pay you generously, 30% of the amount - <money30>USD,
for your help. Please get in touch with me at this email address asap.
Yours sincerely
Frank <last_name>
```

Sample IO (The input from the user is shown in **bold font**):

Enter first name:

Patrick

Enter last name:

Star

Enter sum of money in USD:

1234

Enter country name:

South Africa

```
Dearest Patrick
It is with a heavy heart that I inform you of the death of my father,
General Fayk Star, your long lost relative from Mapsfostol.
My father left the sum of 1234USD for us, your distant cousins.
Unfortunately, we cannot access the money as it is in a bank in South Africa.
I desperately need your assistance to access this money.
I will even pay you generously, 30% of the amount - 370.2USD,
for your help. Please get in touch with me at this email address asap.
Yours sincerely
Frank Star
```

Hint: Use "\n" at the end of your input string to move to the next line before input.

Question 4 [20 marks]

Write a program called `leapYear.py` to determine whether a year is a leap year or not. A year is a leap year if (a) it is divisible by 400 or (b) it is divisible by 4 but not by 100. Your program must accept input from the user in the form of an integer representing the year. Then, it checks if it is a leap year or not.

Sample I/O (The input from the user is shown in **bold font**):

```
Enter a year:
```

```
2023
```

```
2023 is not a leap year.
```

Sample I/O (The input from the user is shown in **bold font**):

```
Enter a year:
```

```
2020
```

```
2020 is a leap year.
```

Submission

Create and submit to the automatic marker a Zip file called `ABCXYZ123.zip` (where `ABCXYZ123` is YOUR student number) containing `com_sci.py`, `spam.py`, `time.py` and `leapYear.py`.

NOTES:

1. FOLDERS ARE NOT ALLOWED IN THE ZIP FILE.
2. As you will submit your assignment to the Automarker, the Assignment tab will still say “Not Complete” or “In Progress” or something similar. THIS IS COMPLETELY NORMAL. IGNORE IT.