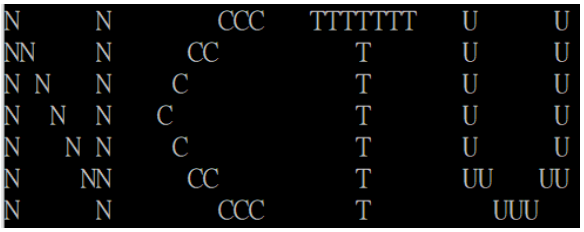
Lesson E2, Exercises

1. Text output

Output text to draw “NCTU” in any size, any style, and any symbol you like. An example is shown below,



2. Escape and special characters, 1

Using one Python statement to print out the following text,

```
University      'NCTU'
Department      'Biological Science and Technology'
Course          "Programming Language"
```

Note that using “tab” to compartment the title and its content.

3. Variables

Save the following pieces of information each into a variable. You may refer to Question 4. to understand the meaning of these four strings.

ATGGAACTGTTCGTC
15
MELFV
5

4. Text concatenation (merging)

Using the variables you created in Question 3 to print out the following text,

An oligonucleotide of sequence 'ATGGAACTGTTCGTC' (length = 15) in a coding strand will be translated into an oligopeptide of sequence 'MELFV' (length = 5).

5. String length function

Write a program to compute and print out the length of the text variables listed below,

```
univ = "NCTU"
department = "Biological Science and Technology"
course = "Programming Language"
```

Your output may look like this:

```
length of 'univ'       = 4
length of 'department'  = 33
length of 'course'      = 20
```

6. Lower/Upper case methods

Print the following text in lower case and then in upper case:

```
department = "Biological Science and Technology"
```

7. Lower/Upper case methods

Here we have a DNA coding strand sequence show below. Please print to the screen the messenger RNA sequence of it.

ATGCTGGTACCTAGTTGATCGTTACCCAGATTTAGTCAAGCTCAC

8. Substring manipulations

In the following target string variable, at which Python string position do these substring first occur: “Sci”, “Tech”, “olo”, “bio” and “lol”? And, how many time does each of the above substings occurs in the target string?

```
department = "Biological Science and Technology"
```

9. Extract substrings

Here we have a text string “INLCOTVUE”. Extract the characters at odd number positions and concatenate them into a string. Similarly, extract the characters at even number positions and concatenate them into another string. Finally, concatenate these two strings and print out the result.

Note that in this question, the “position” means “human-style” position.

10. Numeric variable and its operations

Compute and print out the following equations,

(1) 3 + 2 (2) 3 / 2 (3) 1 + 3 / 2 (4) (1 - 3) / 2 (5) 9 * 3 - 1