

Lab 4 – Branching and Looping

Deadline: Sunday, Sep. 28th 2025 11:59 pm

Submission

- lab4_<your_name>_<SID>_Q1.py
- lab4_<your_name>_<SID>_Q2.py
- lab4_<your_name>_<SID>_Q3.py

1. (6 Pts) Lab CheckOff

Q1. (2 Pts) Branching

1. Ask the user for three integers a, b and c, and prints out the largest among them. If there are more than one largest value (e.g. $a=b$ and $a>c$), print 'Tie'.
2. Ask the user for her weight w (kilograms) and height h (meters), and prints whether she is fit ($18.5 < \text{BMI} \leq 25$), underweight ($\text{BMI} \leq 18.5$), overweight ($25 < \text{BMI} \leq 30$), or obese ($\text{BMI} > 30$). ($\text{BMI} = m/(h^2)$)

Q2. (2 Pts) Looping

Write a program that prints the following sequence of number:

1. 3.0, 2.7, 2.4, 2.1,, -2.4, -2.7, -3.0
2. 1, -2, 4, -8,, 256

Note: you can use `print(' ', end=end)` to specify what to print at the end. Default is '\n' (new line).

Q3. (2 Points) Build Full Pyramid Patterns

A full pyramid pattern is a series of lines that form a pyramid-like structure. Each line contains a specific number of characters, and the number of characters on each line increases symmetrically as we move down the pyramid.

Test Case

Enter number of rows in pyramid: 4

```
#
###
#####
#####
```

2. Program Assignment – Submit on Canvas

Q1. (2 Pts) Singular verb form

The third person singular verb form in English is distinguished by the suffix -s, which is added to the stem of the infinitive form: run -> runs.

A simple set of rules can be given as follows:

- If the verb ends in y, remove it and add ies
- If the verb ends in o, ch, s, sh, x or z, add es
- One special case: have -> has
- By default just add s

Note:

- You can assume the input is always valid (i.e. an English verb)
- Test your function with words like try, brush, run and fix.
- Tip: Check out the string method `endswith()`.

```
# Test Case 1
Enter the verb: try
Singular verb form: tries

# Test Case 2
Enter the verb: run
Singular verb form: runs
```

Q2. (2 Points) Date Formatter

Write a program that translates a date written in the DD-MM-YY format into the Month Day, Year format. For example, the execution of the program could be:

```
Specify a date: 05-09-80
The date is: September 5th, 1980
```

Notes.

- You should decide whether “st”, “nd”, “rd” or “th” should be added to the end of a date (e.g. 21st, 22nd, 23rd, 24th).
- You can assume the input date is always valid.
- Decide whether “19” and “20” should be added to the front of a year.
 - This year is 2025. We would like the year to be close to 2025. For example, 1980 (not 2080), 2030 (not 1930). Use “20” if they are equally distanced.

Q3. (2 Points) Write a program to ask the user input an integer n , and determine whether n is a prime number.

An integer is **prime** if it has exactly two divisors: 1 and itself. Note that 1 is not a prime number.

```
# Example 1
Enter the number n: 10
10 is not a prime number
```

```
# Example 2
Enter the number n: 13
13 is a prime number
```