
Programming Assignment 2 (60 points)

Due date: July 11, 2016 at 11:59 PM

Assignment Overview

In this assignment you will practice with conditionals and loops (for, while). This assignment will give you experience on the use of:

- The if Statement - The if-else Statement
- Boolean Variables
- The while Loop and the for Loop: A Count-Controlled Loop

Part 1: Season [20 points]

The following algorithm yields the season (Spring, Summer, Fall, or Winter) for a given month and day.

If month is 1, 2, or 3, season = "Winter"
Else if month is 4, 5, or 6, season = "Spring"
Else if month is 7, 8, or 9, season = "Summer"
Else if month is 10, 11, or 12, season = "Fall"
If month is divisible by 3 and day >= 21
    If season is "Winter", season = "Spring"
    Else if season is "Spring", season = "Summer"
    Else if season is "Summer", season = "Fall"
    Else season = "Winter"

Write a program that prompts the user for a month and day and then prints the season, as determined by this algorithm.

sample run 1:

```
Enter the month as an integer: 3
Enter the day as an integer: 27
That day is in the Spring
```

sample run 2:

```
Enter the month as an integer: 10
Enter the day as an integer: 12
That day is in the Fall
```

Name the source code file “Season.py”.

Part 2: Salary Schedule [40 points]

Teachers in most school districts are paid on a schedule that provides a salary based on their number of years of teaching experience. For example, a beginning teacher in the Lexington School District might be paid $30,000 the first year. For each year of experience after this first year, up to 10 years, the teacher receives a 2% increase over the preceding value.

Write a program that displays a salary schedule, in tabular format, for teachers in a school district. The inputs are the starting salary, the percentage increase, and the number of years in the schedule. Each row in the schedule should contain the year number and the salary for that year.

Name the source code file "Salary.py".

Sample Run:

```
Enter the starting salary: $45000
Enter the annual % increase: 3
Enter the number of years: 15
Year   Salary
-------------
 1    45000.00
 2    46350.00
 3    47740.50
 4    49172.72
 5    50647.90
 6    52167.33
 7    53732.35
 8    55344.32
 9    57004.65
10    58714.79
11    60476.24
12    62290.52
13    64159.24
14    66084.02
15    68066.54
```

Make sure your output is formatted as shown above. Whenever your program accepts user input, you need to make sure that the user supplied values are valid before you use them in your computations. If the user provides an input that is not in the expected range, print an error message and don't process the input.

Extra Credit: PIN [15 points]

When you use an automated teller machine (ATM) with your bank card, you need to use a personal identification number (PIN) to access your account. If a user fails more than three times when entering the PIN, the machine will block the card. Assume that the user's PIN is "1234" and write a program that asks the user for the PIN no more than three times, and does the following:

- If the user enters the right number, print a message saying, "Your PIN is correct", and end the program.
- If the user enters a wrong number, print a message saying, "Your PIN is incorrect" and, if you have asked for the PIN less than three times, ask for it again.
- If the user enters a wrong number three times, print a message saying "Your bank card is blocked" and end the program.

Name the source code file "PIN.py".

Sample Run:

```
Enter your PIN: 2341
Your PIN is incorrect
Enter your PIN: 7863
Your PIN is incorrect
Enter your PIN: 1234
```

Submission instructions:

1. Include the standard program header at the top of your Python files.
2. Please be sure to use the specified file name.
3. You need to label your assignment with your first name initial, last name, and the name of the assignment. Example: hibrahim_assignment2.zip
4. Zip the files to upload to Canvas (hibrahim_assignment2.zip).
5. Submit the zipped file containing the following files:
    a. Season.py
    b. Salary.py

Standard program header

Each programming assignment should have the following header, with italicized text appropriately replaced.

Note: You can copy and paste the comment lines shown here to the top of your assignment each time. You will need to make the appropriate changes for each assignment (assignment number, due date, and description).

```
'''
 * Program #: Insert assignment name
 * Programmer: Insert your name
 * Due: Insert due date
 * CS 3A, summer 2016
 * Description: (Give a brief description for Assignment 2)
'''
```