Coding challenge 1 - Winter 2025

Due date: **Feb 4th (11:59 PM)**

- This is an **individual** assignment.
- Do **NOT** copy from others, do **NOT** post the assignment instructions, and do **NOT** share your answer with others; including AI agents such as ChatGPT paid or free.
  - Remember, copying and pasting from any other person or online resources is also considered **plagiarism**.
- You **are allowed** to message TAs and the instructor regarding this challenge. Any other communication (besides TAs/instructor) is an **academic misconduct**.
- You are allowed to access YOUR past assignments and notebooks used in this course for Winter 2025.
- You are allowed to access and consult the course's Canvas materials (such as lecture slides, notes, etc) and textbook.
- You are **NOT** allowed to exchange materials or to communicate with other students regarding this assignment or its solution.
- Any form of academic misconduct will be treated accordingly to the university's code of conduct.

The goal of this assignment is to measure learning milestones.

Can you effectively apply basic programming concepts such as: **variables and conditionals**?

- You are required to document your code using comments. Failing to do so may result in deductions.
- You are required to submit **both** (`PDF` or `HTML`) **and** ipynb versions of your solution. Failing to do so may result in deductions.

General Tips/Strategies

- Refer to the course material and the practice questions for similar problems.
- Before you start, make sure you understand the problem first, then start thinking about the solution.
- Focus on each of the enumerated tasks/steps at a time.
- Use `#comments` to guide yourself on steps you need to take so you don't forget and also gives you a clearer picture of what to do.
- Most importantly, **start early** and **ask for clarification** if you need it. ##### Good luck! You got this!

In [ ]:
```
# Challenge 1 - CSCI1040U

# 4th, February, 2025
```

The Challenge Exercise 1

Background: Library Late Fee Calculator

A local library charges late fees for overdue books based on how many days a book is overdue. The fee structure is as follows:

Days Overdue	Fee Per Book
1 - 5 days	$0.50 per day
6 - 10 days	$1.00 per day
11 - 15 days	$1.50 per day
16+ days	$2.00 per day (plus a warning for suspension)

Your program should:

1. Ask the user how many books they returned late.
2. Ask how many days overdue the books are.
3. Calculate the total late fee based on the table above.
4. Display the total fee and, if the books are overdue by **16 or more days**, prints a warning message about possible account suspension.

In [2]:
```
#GIVEN CONDITIONS ARE:

#Ask the user how many books they returned late.
#Ask how many days overdue the books are.
#Calculate the total late fee based on the table above.
#Display the total fee and, if the books are overdue by 16 or more days, prints a warning message about possible account suspension.

nbooks = int(input("Enter the number of overdue books: "))
ndays = int(input("Enter the number of days overdue: "))

#with the use of given data the values are put in:

if ndays >= 16:
    fee_per_day = 2.00
elif ndays >= 11:
    fee_per_day = 1.50
elif ndays >= 6:
    fee_per_day = 1.00
else:
    fee_per_day = 0.50

#the formula for getting the final result
total_fee = nbooks*ndays*fee_per_day

#tried to print it without the string but it didnt workout,
print("You have " + str(nbooks) + " overdue books for " + str(ndays) + " days.")
print("The total late fee is: $" + str(round(total_fee, 2)))

#warning message if days>=16
if ndays >= 16:
    print("WARNING: Your account may be suspended due to excessive late returns!")
```

```
Enter the number of overdue books:  2
Enter the number of days overdue:  6
You have 2 overdue books for 6 days.
The total late fee is: $12.0
```

Sample test case 1 input

Enter the number of overdue books: 3 Enter the number of days overdue: 7

Sample test case 1 output

```
You have 3 overdue books for 7 days. The total late fee is: $21.00
```

Sample test case 2 input

Enter the number of overdue books: 2 Enter the number of days overdue: 18

Sample test case 2 output

```
You have 2 overdue books for 18 days. The total late fee is: $72.00
WARNING: Your account may be suspended due to excessive late returns!
```

Tips/Strategies

- You were given the code to take the user's input already.

The Challenge Exercise 2

Background: 2-player rock, paper, scissors

You know that, to determine the winner you will apply the rules:

- Rock beats Scissors
- Scissors beats Paper
- Paper beats Rock

Write a program that allows two players to play a single round of Rock, Paper, Scissors against each other.

Your program should:

1. Display the options to both players: Rock, Paper, Scissors.
2. Ask **Player 1** to input their choice.
3. Ask **Player 2** to input their choice.
4. Compare the choices to determine the winner based on the rules.
5. Print both players' choices and the result of the game.
    - If both players play the same choice, it's a tie; display: `"Player 1 and 2 tie."`
6. Ensure the inputs mispelled or not respecting the case (all choices are capitalized: "Rock", "Scissors", and "Paper") will result in the follow output: `"ERROR: Invalid choice."` .

Sample input

```
Player 1, choose Rock, Paper, or Scissors: Rock
Player 2, choose Rock, Paper, or Scissors: Scissors
```

Sample output

```
Player 1 chose Rock.
Player 2 chose Scissors.
Player 1 wins!
```

Tips/Strategies

- Use `input()` to collect both players' choices.
- Use conditionals to compare the inputs and determine the outcome of the game.

In [32]:

```
# your solution

#GIVEN CONDITIONS ARE:
#Ask Player 1 to input their choice.
#Ask Player 2 to input their choice.
#Compare the choices to determine the winner based on the rules.
#Print both players' choices and the result of the game.
#If both players play the same choice, it's a tie; display: "Player 1 and 2 tie."
#Ensure the inputs mispelled or not respecting the case (all choices are capitalized: "Rock", "Scissors", and "Paper") will result in the follow output: "ERROR: Invalid choice.".

#1.to get input from both players
#2.if the input is valid
#3.what each player chose
#4.if it's a tie
#5.if PLAYER1 or PLAYER2 wins


PLAYER1 = input("Player 1, choose Rock, Paper, or Scissors: ")
PLAYER2 = input("Player 2, choose Rock, Paper, or Scissors: ")


if PLAYER1 not in ["rock", "paper", "scissors"]:
    print("ERROR: Invalid choice.")
elif PLAYER2 not in ["rock", "paper", "scissors"]:
    print("ERROR: Invalid choice.")
else:

    print("Player 1 chose", PLAYER1)
    print("Player 2 chose", PLAYER2)

    if PLAYER1 == PLAYER2:
        print("It's a tie")
    elif PLAYER1 == "rock" and PLAYER2 == "scissors":
        print("Player 1 wins")
    elif PLAYER1 == "scissors" and PLAYER2 == "paper":
        print("Player 1 wins")
    elif PLAYER1 == "paper" and PLAYER2 == "rock":
        print("Player 1 wins")
    else:
        print("Player 2 wins")
```

```
Player 1, choose Rock, Paper, or Scissors:  paper
Player 2, choose Rock, Paper, or Scissors:  paper
Player 1 chose paper
Player 2 chose paper
It's a tie
```

Submission

Via Canvas, under `Assignments/Challenges/Challenge 1`

- Submit 2 files (`.pdf` or `.html`) and `.ipynb` versions of your notebook with the solution
- Name your file following the pattern `lastname-firstname-challenge1`

Late submissions

Up to **1 day**, 25% deduction per day. No submissions will be accepted thereafter.