CSC500 – Week 5 Assignment

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Topic: Loops and Decision Making (Rainfall + Book Club Points)

Extended Description (Simple Words)

This week has two programs. The first one finds the average rainfall over a few years using loops. The second one gives book club points based on how many books a person buys. Both programs show how to use loops to repeat steps and if-else statements to make choices.

Part 1: Average Rainfall

Pseudocode

```
START
ASK for number of years -> years
SET total_rain = 0
SET months = 0
FOR each year from 1 to years:
    PRINT "Year x"
    FOR each month from 1 to 12:
        ASK for rainfall in inches
        ADD rainfall to total_rain
        ADD 1 to months
SET average = total_rain / months
PRINT total months, total rainfall, and average rainfall
END
```

Python Source Code

```python
# Week 5 – Part 1: Average Rainfall
def main():
    print("Average Rainfall Calculator")
    years = int(input("Enter number of years: "))
    total_rain = 0
    months = 0

    for year in range(1, years + 1):
        print(f"Year {year}:")
        for month in range(1, 13):
            rain = float(input(f"Enter inches of rainfall for month {month}: "))
            total_rain += rain
            months += 1

    average = total_rain / months
    print(f"Total months: {months}")
    print(f"Total rainfall: {total_rain:.2f} inches")
    print(f"Average rainfall per month: {average:.2f} inches")

if __name__ == "__main__":
    main()
```

Sample Run

```
Average Rainfall Calculator
Enter number of years: 2
Year 1:
Enter inches of rainfall for month 1: 3
```

```
...
Year 2:
Enter inches of rainfall for month 12: 4
Total months: 24
Total rainfall: 65.00 inches
Average rainfall per month: 2.71 inches
```

Part 2: Book Club Points

Pseudocode

```
START
ASK for number of books purchased -> books
IF books == 0 THEN points = 0
ELSE IF books == 2 THEN points = 5
ELSE IF books == 4 THEN points = 15
ELSE IF books == 6 THEN points = 30
ELSE IF books >= 8 THEN points = 60
PRINT points earned
END
```

Python Source Code

```python
# Week 5 - Part 2: Book Club Points
def main():
    print("Book Club Points Calculator")
    books = int(input("Enter the number of books purchased this month: "))

    if books == 0:
        points = 0
    elif books == 2:
        points = 5
    elif books == 4:
        points = 15
    elif books == 6:
        points = 30
    elif books >= 8:
        points = 60
    else:
        points = 0

    print(f"You earned {points} points.")

if __name__ == "__main__":
    main()
```

Sample Run

```
Book Club Points Calculator
Enter the number of books purchased this month: 6
You earned 30 points.
```