

# Week 3 Practice Tasks: Integrating Concepts (If/Else, Loops, Variables)

These tasks are designed to combine all the concepts learned so far: declaring **variables**, using **data types** (`int`, `float`), implementing **decision-making** (`if/else`), and applying **repetition** (simple `while` loops).

## Task 1: The Basic Authenticator (`if/else`)

**Question:** Define a correct password as an integer variable (e.g., `int correct\_pin = 1234;`). Ask the user to enter a 4-digit PIN. If the entered PIN matches the `correct\_pin`, print "Access Granted." Otherwise, print "Access Denied."

Category	Details
<i>Required Concepts</i>	<code>int</code> variable, <code>if/else</code> statement, <b>Relational Operator</b> ( <code>==</code> ).

**Example Input and Output:**

Input (User enters)	Output (Program prints)
1234	Access Granted
9999	Access Denied

## Task 2: The Ticket Checker (**if/else if/else**)

**Question:** Ask the user for their age. Implement the following pricing rules using **multiple if/else if/else conditions** and print the corresponding price:

- **Age  $\leq 5$ :** Free
- **Age  $\geq 65$ :** \$5 (Senior Discount)
- **All other ages:** \$10 (Regular Price)

Category	Details
<i>Required Concepts</i>	int variable, <b>Multiple Conditionals</b> ( <b>if, else if, else</b> ).

**Example Input and Output:**

Input (User enters)	Output (Program prints)
4	Your ticket is Free.
45	Your ticket is \$10.
70	Your ticket is \$5 (Senior Discount).

## Task 3: The Summation Counter (**while** Loop)

**Question:** Ask the user to enter a positive integer \$N\$. Use a **while loop** to find the total sum of all whole numbers from 1 up to and including \$N\$ (\$1 + 2 + 3 + \dots + N\$). Print the final sum.

Category	Details
Required Concepts	int variables (for \$N\$, counter, and sum), <b>while loop</b> , <b>Compound Assignment</b> (sum += counter;).

**Example Input and Output:**

Input (User enters)	Output (Program prints)
5	The sum from 1 to 5 is 15. (i.e., \$1+2+3+4+5=15\$)

## Task 4: The Input Validator (**while** Loop and **if**)

**Question:** Use a **while** loop that runs indefinitely (or until a condition is met). Inside the loop, prompt the user for an integer. Use an **if statement** and the **Modulo Operator (%)** to check if the number is **even** (`number % 2 == 0`). If it is even, print "Valid entry!" and **break** the loop. If it's odd, print "Invalid! Please enter an even number." and the loop continues.

Category	Details
Required Concepts	<code>int</code> variable, <b>while</b> loop, <b>if statement</b> , <b>Modulo Operator (%)</b> .

**Example Input/Output Sequence:**

Sequence	Input/Output
1	<b>Program:</b> Enter an even number: 7
2	<b>Program:</b> Invalid! Please enter an even number: 3
3	<b>Program:</b> Invalid! Please enter an even number: 10
4	<b>Program:</b> Valid entry!

## Task 5: The Floating-Point Average (**while** Loop and Data Type)

**Question:** Use a **while** loop that runs exactly four times. Inside the loop, ask the user for a score (integer input, e.g., 85). Calculate the total sum of the four scores. After the loop, calculate the **average** and print it with two decimal places. Ensure your average calculation correctly handles **decimal data types**.

Category	Details
Required Concepts	<b>while loop</b> , <b>int</b> and <b>float</b> variables, <b>Type Conversion</b> (casting or data promotion), Division.

**Example Input and Output:**

Input Sequence	Output (Program prints)
80, 90, 70, 100	The average score is 85.00

**HINT:** When calculating the average, remember to divide the integer **sum** by a **floating-point** number (e.g., **4.0**) to avoid integer truncation.