Assignment - 03

Total Marks	Deadline	Topic
100	08/13/2025	Conditional statements, nested if-else, while loops in Python

Topics: Conditional Statements (5 questions × 5 = 25)

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1. Write a Python program and take a temperature input and print:
   - Cold (temp < 15)
   - Warm (15 ≤ temp < 30)
   - Hot (temp ≥ 30)

2. Write a Python program and take accuracy input (0–100%).
   - If accuracy ≥ 90 → Excellent Model
   - If 70–89 → Good Model
   - If 50–69 → Average Model
   - Else → Poor Model

3. Write a Python program and take an integer dataset size input and print whether it is Even or Odd.

4. Write a Python program and take two loss values as input (model_1_loss, model_2_loss) and print which model performs better.

5. Write a Python program and take a message as input.
   - If "offer" or "free" is present, then print "Spam Message."
   - Else → "Not Spam"

Topics: Nested If-Else (5 questions × 5 = 25)

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6. Write a Python program and give input:
   - Age
   - Number of published papers
     rules:
   - If age ≥ 18:
     - If papers ≥ 2 → "Eligible for Talk"
     - Else → "Eligible for Attendee only"

- Else → "Not Eligible"

7. Write a Python program with the following inputs: accuracy and latency (ms).
- If Accuracy ≥ 85:
  - If Latency ≤ 100ms → "Ready for Production"
  - Else → "Needs Optimization"
- Else → "Not Suitable for Deployment"

8. Write a Python program with the following inputs: number of samples and percentage of missing values.
- If samples ≥ 1000:
  - If missing ≤ 10% → "Good Dataset"
  - Else → "Needs Cleaning"
- Else → "Insufficient Data"

9. Write a Python program inputs: data_source (public/private) and consent (yes/no)
- If data_source == public → "Usable Data"
- Else nested check:
  - If consent == yes → "Usable Data"
  - Else → "Ethical Issue"

10. Write a Python program with the input:
problem_type (classification/regression) and dataset_size.
- If classification:
  - If dataset_size ≤ 5000 → "Logistic Regression"
  - Else → "Neural Network"
- If regression:
  - If dataset_size ≤ 10000 → "Linear Regression"
  - Else → "XGBoost"

Topic: While Loops (5 questions × 5 = 25)

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11. Write a Python program and take an initial loss value as input.
While loss > 0.1: subtract 0.05 each iteration and print loss.

12. Write a Python program and Create a chatbot that takes user input.
It should keep responding "Bot: I am learning..." until the user types "exit."

13. Write a Python program and use a while loop to count from 1 up to dataset_size and print the final count.

14. Write a Python program and take input: total_epochs.
For each epoch, print "Training epoch X" until all epochs are completed.

15. Write a Python program and take input: a number.
Use a while loop to keep dividing the number by 2 until the value ≤ 1. Print each step.

Combine Questions (5 questions × 5 = 25)

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16. Write a Python program and take input: password.

- If length ≥ 8:
  - If "AI" exists → "Strong Password"
  - Else → "Weak Password"
- Else → "Invalid Password"

17. Write a Python program and take Input: learning_rate = 0.1.
While learning_rate > 0.001, divide learning_rate by 2 and print each value.

18. Write a Python program and take input: dataset_labels (number of labels).
Use a while loop to count even labels only.

19. Write a Python program and take input: accuracy = 50
While accuracy < 95: increase accuracy by 5 and print "Current Accuracy: x%."

20. Write a Python program and take input: marks (0-100).

- If marks ≥ 80 → "AI Expert"
- Else if marks ≥ 60 → "AI Learner"
- Else → "Needs Improvement"