Class XI – Artificial Intelligence

Instructor: Saptarshi Jana

Assignment 7-11

Due date: 14.11.2025 *Full Marks: 50*

Assignment 7

Types of Data: Identification, Acquiring, Exploring

Q1. Define structured, semi-structured, and unstructured data with one example each.

Q2. Explain the process of data acquisition in AI systems. Mention two commonly used data sources.

Q3. What is meant by data exploration? Describe any two basic techniques used during exploration.

Q4. Identify the type of data in the following: (i) Patient medical records (ii) Social media posts (iii) Student database table (iv) Sensor readings from IoT devices.

Q5. Describe how data identification and exploration help improve the performance of an AI model.

Assignment 8

Unstructured Data and Its Processing

Q1. Define unstructured data. Give three examples of real-life unstructured datasets.

Q2. Differentiate between structured and unstructured data in a tabular format.

Q3. What are some challenges in processing unstructured data? Mention two solutions.

Q4. Explain how AI techniques like NLP and computer vision help in understanding unstructured data.

Q5. Describe the steps involved in converting unstructured data into a structured format for analysis.

Assignment 9

Natural Language Processing (NLP)

Q1. Define Natural Language Processing (NLP). Why is it important in AI?

Q2. List and explain any three key techniques used in NLP.

Q3. Describe any two common applications of NLP in everyday life.

Q4. Explain the difference between **text generation** and **text understanding**.

Q5. How does NLP contribute to language translation and chatbots? Give one example of each.

Assignment 10

Potential Uses of AI

Q1. Explain how AI assists in medical decision-making and patient diagnosis.

Q2. Describe the role of AI in remote patient monitoring systems.

Q3. Discuss how AI is used for large-scale data analysis and prediction.

Q4. Provide two examples of how AI helps solve complex real-world problems.

Q5. Compare human decision-making and AI-based decision-making in terms of speed, consistency, and accuracy.

Assignment 11

Binary Logic System and Conditional Gates

Q1. What is the binary logic system? Why is it important in computing and AI?

Q2. Write the truth tables for AND, OR, and NOT gates.

Q3. Explain the difference between NAND and NOR gates with suitable truth tables.

Q4. Design a logical circuit that outputs 1 only when both inputs are different (use XOR gate).

Q5. Give one real-world example of how conditional logic (using gates) is applied in AI or robotics.

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