

1. Define artificial intelligence (ai) and provide examples of its applications ?

ANS : Artificial intelligence is the simulation of human intelligence processes by machines, especially computer systems. Specific applications of AI include expert systems, natural language processing, speech recognition and machine vision.

2. Differentiate between supervised and unsupervised learning techniques in ML ?

ANS : Supervised learning uses labeled training data, and unsupervised learning does not. More simply, supervised learning models have a baseline understanding of what the correct output values should be.

3. What is Python? Discuss its main features and advantages.

ANS: Python is an interpreted high-level programming dialect known for its straightforwardness, flexibility and meaningfulness. It is simple to learn and utilize, object-oriented, interpreted, cross-platform, has a broad standard library, powerfully written, and supports numerous programming standards.

4. What are the advantages of using Python as a programming language for AI and ML?

ANS: Python is the major code language for AI and ML. It surpasses Java in popularity and has many advantages, such as a great library ecosystem, Good visualization options, A low entry barrier, Community support, Flexibility, Readability, and Platform independence.

5. Discuss the importance of indentation in Python code.

ANS : The primary purpose of indentation in Python is to define the scope of statements, such as those within loops, conditionals, functions, and classes. Consistent and proper indentation is crucial for the interpreter to understand the logical structure of the code

6. Define a variable in Python. Provide examples of valid variable names ?

ANS: A variable can have a short name (like x and y) or a more descriptive name (age, carname, total_volume). Rules for Python variables: A variable name must start with a letter or the underscore character. A variable name cannot start with a number.

7. Explain the difference between a keyword and an identifier in Python ?

ANS: Keywords in Python are predefined words that have a special meaning to the interpreter. They are reserved words that are used to perform a specific task in Python programming. Identifiers in Python are names given to different parts of a Python program like variables, functions, classes

8. List the basic data types available in Python ?

ANS: Python has several built-in data types, including numeric types (int, float, complex), string (str), boolean (bool), and collection types (list, tuple, dict, set). Each data type has its own set of properties, methods, and behaviors that allow programmers to manipulate and process data effectively in their programs.

9. Describe the syntax for an if statement in Python ?

ANS: If the condition is True, the code block indented below the if statement will be executed. If the condition is False, the code block will be skipped. Here's an example of how to use an if statement to check if a number is positive: `num = 5 if num > 0: print("The number is positive.")`

10. Explain the purpose of the elif statement in Python ?

ANS: Elif stands for 'else if' and is used in Python programming to test multiple conditions. It is written following an if statement in Python to check an alternative condition if the first condition is false. The code block under the elif statement will be executed only if its condition is true.