PYTHON FOR DATA SCIENCE- ASSIGNMENT 1

PES2UG22EC016

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1. Let x = "Mayur". Which of the following commands converts the 'x' to float datatype? [1 mark]

   (a) str(float,x)

   (b) x.float()
   (c) float(x)
   (d) Cannot convert a string to float data type
   Answer: d

2. student = {'name': 'Jane', 'age': 25, 'courses': ['Math', 'Statistics']}
   Which among the following will return
   {'name': 'Jane', 'age': 26, 'courses': ['Math', 'Statistics'], 'phone': '123-456'}
   (a) student.update({'age' : 26})
   (b) student.update({'age' : 26, 'phone': '123-456'})
   (c) student['phone'] = '123-456'
       student.update({'age' : 26})
   (d) None of the above
   Answer: (b, c)

3. What are bitwise operators in Python? Explain in detail. [4M]
   Bitwise operators in Python are used to perform operations on binary representations of integers.
   Python supports several bitwise operators:
   AND (&): Performs a bitwise AND operation. Each bit of the result is 1 if both corresponding bits of the operands are 1; otherwise, it is 0.
   OR (|): Performs a bitwise OR operation. Each bit of the result is 1 if at least one of the corresponding bits of the operands is 1.
   XOR (^): Performs a bitwise XOR operation. Each bit of the result is 1 if the corresponding bits of the operands are different; otherwise, it is 0.
   NOT (~): Performs a bitwise NOT operation, inverting all the bits of the operand.
   Left Shift (<<): Shifts the bits of the number to the left by a specified

number of positions
Right Shift (>>): Shifts the bits of the number to the right by a specified
number of positions

4. **Write a note on the different sequence data types. [4M]**
    Python offers several sequence data types for managing ordered collections
    efficiently. These include:
    String: An immutable sequence of characters, used to handle text. Created
    with single, double, or triple quotes, and supports indexing and slicing.
    List: A mutable, ordered sequence that can store items of any type. Lists use
    square brackets and can be changed after creation by adding, removing, or
    updating elements.
    Tuple: An immutable, ordered sequence, defined with parentheses. Tuples
    store multiple items, but their content cannot be changed once set.
    Range: An immutable sequence representing evenly spaced numbers,
    typically used for loops and generated by the range() function.
    Bytes/Bytearray: bytes are immutable sequences of integers (0–255) for
    binary data, while bytearray is the mutable counterpart.
    Each sequence type supports common operations like indexing, iteration,
    and slicing, but differs in mutability and typical use cases.