1. In the below elements which of them are values or an expression? eg:- values can be integer or string and expressions will be mathematical operators.

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| \* -> Expression  'hello' -> Value  -87.8 -> Value  - -> Expression  / -> Expression  + -> Expression  6 -> value |

1. What is the difference between string and variable?

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| **String**:   * A string is a data type in Python. * It represents a sequence of characters. * The characters are stored inside quotes. * Example: "Sanskruti"   **Variable**:   * A variable is a name that refers to a value stored in memory. * It can store values of various data types, such as strings, integers, and floats. * There are specific rules for naming variables: a variable name must start with a letter or an underscore (\_), cannot start with a number, and can contain letters, numbers, and underscores. * Example: name = "Sanskruti" |

1. Describe three different data types.

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| **Three different data types in Python are:**   1. **Integer:**    * Integers are whole numbers, positive or negative, without any fractional part.    * They are assigned to a variable without quotes.    * Example: num = 123 2. **String:**    * Strings are sequences of characters (letters, numbers, symbols) enclosed in quotes.    * They are assigned to a variable using quotes.    * Example: student = "Sanskruti" 3. **Complex:**    * Complex numbers consist of a real part and an imaginary part.    * They are written with a real number and an imaginary number separated by a + or - sign, with the imaginary part followed by j or J.    * They are assigned to a variable without quotes.    * Example: cnum = 3 + 2j |

1. What is an expression made up of? What do all expressions do?

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| * An expression in Python is a combination of values, variables, operators, and function calls that are evaluated to produce another value. * Expressions are used to perform operations, such as arithmetic operations (addition, multiplication, etc.), comparisons, logical operations, and more. * The result of evaluating an expression is a value. *  Eg : a=5   + - b=6     - a+b |

1. This assignment statements, like spam = 10. What is the difference between an expression and a statement?

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| * An assignment statement, like `spam = 10`, assigns a value to a variable. * The difference between an expression and a statement is that an expression produces a value and can be part of a statement, while a statement performs an action and does not necessarily produce a value. * For example, `spam = 10` is a statement, whereas `5 + 5` is an expression. |

6. After running the following code, what does the variable bacon contain?

bacon = 22

bacon + 1

**Ans. bacon = 22**

7. What should the values of the following two terms be?

'spam' + 'spamspam'

**Ans. ‘spamspamspam’**

'spam' \* 3

**Ans. ‘spamspamspam’**

8. Why is eggs a valid variable name while 100 is invalid?

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| * The variable name `eggs` is valid because it follows Python's naming rules, starting with a letter and containing only letters and underscores. * On the other hand, `100` is invalid because variable names cannot start with a digit. * Variable names must begin with a letter (a-z, A-Z) or an underscore (\_). |

9. What three functions can be used to get the integer, floating-point number, or string version of a value?

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| The three functions are `int()`, `float()`, and `str()`. `int()` converts a value to an integer, `float()` converts a value to a floating-point number, and `str()` converts a value to a string. These functions are used for type conversion in Python. |

10. Why does this expression cause an error? How can you fix it?

'I have eaten ' + 99 + ' burritos.'

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| * The expression `'I have eaten ' + 99 + ' burritos.'` causes an error because Python cannot concatenate a string (`'I have eaten '`) with an integer (`99`) directly. * To fix it, convert the integer `99` to a string using `str(99)`: `'I have eaten ' + str(99) + ' burritos.'` * This ensures all parts are strings and can be concatenated correctly. |