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Subject - AI ML Assignment 1.8

1. The two values of boolean data type are True and False which represent the logical states of true and false respectively. To write the boolean data types true and false we simply assign the values true and false to variables , like for example:-

A = True

B = False

1. The three boolean operators are AND,OR and NOT.
2. The truth table for the three logic operators are:-

The truth table for the AND gate, which is a logical operator, shows the output based on the combination of two input values. Here is the truth table for the AND gate:

| Input A | Input B | Output |

|---------|---------|--------|

| False | False | False |

| False | True | False |

| True | False | False |

| True | True | True |

In the table above, the AND gate returns `True` only when both input values are `True`. Otherwise, it returns `False`.

The truth table for the OR gate, which is a logical operator, shows the output based on the combination of two input values. Here is the truth table for the OR gate:

| Input A | Input B | Output |

|---------|---------|--------|

| False | False | False |

| False | True | True |

| True | False | True |

| True | True | True |

In the table above, the OR gate returns `True` if at least one of the input values is `True`. It returns `False` only when both input values are `False`.

The truth table for the NOT gate, which is a logical operator, shows the output based on a single input value. Here is the truth table for the NOT gate:

| Input | Output |

|-------|--------|

| False | True |

| True | False |

In the table above, the NOT gate negates the input value. It returns `True` if the input value is `False`, and `False` if the input value is `True`.

1. I)The expression (5>4) and (3==5) evaluates to False.

II) The expression not(5>4) evaluates to False.

III) The expression not ((5 > 4) or (3 == 5)) evaluates to False.

IV) The expression (True and True) and (True == False) evaluates to

False.

V) The expression (not False) or (not True) evaluates to True.

1. The six comparison operators are :- equal to, not equal to, greater than or equal to, less than or equal to , greater than and less than.
2. The equal to value is used to evaluate if two operands are equal to each other or not wheras the assignment operator is used to assign a particular value to a variable.
3. A condition in programming is a logical statement which determines if a particular segment of a code should be executed or not. We can use conditions in various places like loops, functions and if else statements.