



# Homework Paper: Database & Programming Fundamentals

**Instructions:** Answer all 20 questions.

## Part 1: MySQL (CRUD Operations with WHERE and DISTINCT) (10 Questions)

Assume you are working with a table named *Students* with columns: *StudentID* (INT), *FirstName* (VARCHAR), *LastName* (VARCHAR), *City* (VARCHAR), and *Age* (INT).

1. Which SQL command is used to **add** new records (rows) into the *Students* table?
2. Write the SQL statement to **retrieve** the *FirstName* and *LastName* of all students who live in the city of '**New York**'.
3. Write the SQL command to **update** the *City* of the student with *StudentID* **105** to '**Boston**'.
4. Write the SQL statement to **delete** all records (rows) from the *Students* table where the student's *Age* is less than **18**.
5. What is the purpose of the **DISTINCT** keyword in a **SELECT** statement?
6. Write the SQL statement to **retrieve** a list of **unique** *City* names from the *Students* table.
7. Write the SQL statement to **retrieve** all columns for students who are **not** 20 years old.
8. Write the full SQL command to **insert** a new student record: *StudentID*: 108, *FirstName*: 'Alice', *LastName*: 'Smith', *City*: 'London', *Age*: 21.
9. Consider the following SQL statement: `SELECT FirstName FROM Students WHERE LastName = 'Miller';`. Which of the four CRUD operations does this statement perform?
10. Write the SQL statement to **update** the *Age* of **all** students who live in '**London**' by setting their new age to **25**.

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## Part 2: Python (If-Elif-Else, For Loop, and While Loop) (10 Questions)

*Note: All code examples and answers must use TABS for indentation.*

11. Write a Python if-elif-else structure to check a variable score. If score is greater than or equal to 90, print "A"; if it is between 80 and 89 (inclusive), print "B"; otherwise, print "C".

Python

```
score = 85  
# Your code here
```

12. Which Python loop (specify for or while) is generally better suited for iterating over a **sequence** (like a list or a string) when the number of iterations is known beforehand?

13. Write a Python for loop that iterates through the list fruits = ["apple", "banana", "cherry"] and prints each fruit name.

Python

```
fruits = ["apple", "banana", "cherry"]  
# Your code here
```

14. What will be the final value of the variable count after the following Python while loop finishes?

Python

```
count = 0  
while count < 5:  
    count = count + 1
```

15. Write a Python while loop that asks the user to enter a password and continues prompting **until** the user enters the correct password, which is "secret123". (You can simulate the input process by setting a variable in your answer).

16. The following Python code is intended to print the numbers 1, 3, 5, 7, 9. Fill in the blank (the range(...) parameters):

Python

```
for i in range(____):  
    print(i)
```

17. Rewrite the following Python code using an if statement and a logical operator (and, or, or not) instead of the elif block:

Python

```
x = 10  
y = 5  
if x > 10:
```

```
    print("A")
elif x == 10 and y < 10:
    print("B")
else:
    print("C")
```

18.What is the main difference between a **for** loop and a **while** loop in terms of their execution condition?

19.Write a Python for loop that calculates and prints the sum of all integers from 1 to 10 (inclusive).

20.Fix the following Python while loop so that it prints the numbers 1, 2, 3 and then stops.

Python

```
num = 1
while num < 5:
    print(num)
    # Missing or incorrect line here
```