BAJRA TECHNOLOGIES

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Instructions

1. **Task 1** and **Task 3** are mandatory but **Task 2** and **Task 4** is optional.
2. Provide your solutions in the github with a public link for the task.

Task 1: Database

Create an Employee table as follows:

Field Name	DataType	Allow Nulls
EmployeeID	Integer	No
FirstName	String	No
MiddleName	String	Yes
LastName	String	No
JoinDate	DateTime	Yes
MonthlySalary	Decimal	Yes
DeptID	Integer	No

Create a Department table as follows:

Field Name	DataType	Allow Nulls
DeptID	Integer	No
DeptName	String	No
DeptCode	String	Yes
ParentDeptID	Integer	No

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ManagerID	Integer	Yes
Description	Text	Yes
Active	Boolean	No

WorkedMonths = CurrentDate - JoinDate

Total Earnings*(for an Employee) = WorkedMonths * MonthlySalary*

Maximum Total Earnings *= Maximum Total Earnings among all the Employees*

- Write a **Single Query** to find the **Total Earnings by Employees** grouped by **Departments.**
- Write a **Single Query** to find the list of **Employees** belonging to **Department Sales**, with service length of more than **6 months.**
- Write a **Single Query** to list **Employees** with their **Department Name** and their **Manager Name.**

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Task 2: Python Application

Create an application architecture using any framework for a system that handles **patients' visit to a hospital**.
The system should be able to fulfill the following requirements.

a. Doctors and Receptionists should be able to login in to the application.
b. Receptionists should be able to perform CRUD operations on patient records.
c. Receptionist should be able to schedule an appointment with the doctor.
    An appointment record should have the following attributes compulsorily:
        1. Appointment Date and Time
        2. Doctor
        3. Patient
    Add other attributes as per your requirement.
d. Doctors should be able to view their list of appointments.

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Task 3: Python Programming

Given Dictionary:

```
chest = {
    '42': 'It is the Answer to Life the Universe and Everything.',
    '666': 'If you would be a real seeker after truth, it is necessary that
at least once in your life you doubt, as far as possible, all things.',
    '8': 'It is wrong always, everywhere and for everyone, to believe
anything upon insufficient evidence.',
    '13': 'The Truth is in the Heart.',
    '0': 'Freedom is secured not by the fulfilling of ones desires, but by
the removal of desire.',
    '9': 'The unexamined life is not worth living.',
    '76': 'Life is a series of natural and spontaneous changes.',
    '70': 'God is dead! He remains dead! And we have killed him.'
}
```

1. Sort the dictionary by its keys. Using traditional sorting.
2. Get the values of first, second, last and second last keys.
3. Concatenate the values of obtained keys in a string.

```
# Eg: 'I am John Doe. I am Jane Doe. I am Johnny Doe. I am Janey
Doe.'
```

4. Get first and last characters of each word in concatenated string, no spaces in between.

```
# Eg: 'I am John Doe. I am Jane Doe.' should result in
'IIamJnD.IIamJeD.'
```

5. Get the number of occurrences of each letter in the resulting string and get top 5 letters without using any python package.

```
# Result should be in the format: {'a':32,'b':12,'c':10,'d':8,'e':6}
# number_of_occurences = [32,12,10,8,6]
```

6. On the chest infront of you, there is a list of numbers.

```
key_list = [52,51,61,71,58]
```

7. Sum the number_of_occurrences of the resulting dictionary with values of the key_list you found in the chest.

```
# Eg: [32+52,12+51,10+61,8+71,6+58]
```

8. Then, get the ascii character of those 5 summed values and you shall get the treasure.

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Task 4: Existing Application

Choose an existing project that you have worked on and can be shared with us. Then present the code that you are confident in the next meeting and be prepared to be cross questioned.