

GQ3: Write a JAVA program using JDBC and Azure SQL to implement the following options for the relational database that you have created for Problem 2 in Graded Homework 2:

1. Insert the fid, fname, deptid, and salary of a new faculty member into table Faculty. The salary is computed based on the average faculty salary of his/her department (if the average faculty salary is greater than \$50,000 then the salary of the new faculty member will be equal to 90% of the average faculty salary; if the average faculty salary is less than \$30,000, then the salary of the new faculty member will be equal to the average faculty salary; otherwise, the salary of the new faculty member will be equal to 80% of the average faculty salary).
2. Insert the fid, fname, deptid, and salary of a new faculty member into table Faculty. The salary is computed to be equal to the average salary of every faculty member in the university except the faculty members working for a particular department.
3. Display the complete information of all faculty members.
4. Quit (exit the program).

Requirements for GQ3:

- The program terminates only when the user chooses Option 4.
- Each of Options 1 and 2 must be implemented as a Transact SQL Stored Procedure and the fid, fname, deptid, and a particular department deptid (for Option 2) must be entered as the procedure parameter values at runtime when the procedure is called. The Java program must not handle any option logic. The Java program must be used only for user input collection, database calls to execute the stored procedures, and query result presentation.
- For testing, execute Option 3 once before and after each execution of Options 1 and 2; and execute each of Options 1 and 2 three times with different values of fid, fname, deptid, and a particular department deptid (for Option 2), and execute Option 4 at one time to show that your program terminates correctly.
- The Java program and all the Transact SQL Stored Procedures must have proper in-line comments.

Screenshots of execution:

JDBC connection / view of original table contents (option 3):

```
"C:\Program Files\Java\jdk-21\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2024.2.3\lib\idea_rt.jar=50767:C:\Program Files\JetBrains\IntelliJ IDEA 2024.2.3\bin" -Dfile.encoding=UTF-8
[INFO ] Starting the application
[INFO ] Loading application properties
[INFO ] Connecting to the database
[INFO ] Database connection test: cs-dsa-4513-sql-db
Choose an option (1: Insert faculty, 2: Insert with Department Exclusion, 3: View, 4: Exit):
3
fid: 101, fname: Johnson, deptid: 10, salary: 55000
fid: 102, fname: Lynn, deptid: 10, salary: 65000
fid: 103, fname: Lynn, deptid: 12, salary: 30000
fid: 104, fname: Black, deptid: 11, salary: 32000
Choose an option (1: Insert faculty, 2: Insert with Department Exclusion, 3: View, 4: Exit):
```

Inserting faculty member / view of table after the insertion (option 1):

```

Choose an option (1: Insert faculty, 2: Insert with Department Exclusion, 3: View, 4: Exit):
1
Enter faculty id:
110
Enter faculty name:
James
Enter faculty department:
10
Faculty inserted successfully.
Choose an option (1: Insert faculty, 2: Insert with Department Exclusion, 3: View, 4: Exit):
3
fid: 101, fname: Johnson, deptid: 10, salary: 55000
fid: 102, fname: Lynn, deptid: 10, salary: 65000
fid: 103, fname: Lynn, deptid: 12, salary: 30000
fid: 104, fname: Black, deptid: 11, salary: 32000
fid: 110, fname: James, deptid: 10, salary: 54000
Choose an option (1: Insert faculty, 2: Insert with Department Exclusion, 3: View, 4: Exit):

```

Inserting faculty member with exclusion (option 2) / view of table after insertion:

```

Choose an option (1: Insert faculty, 2: Insert with Department Exclusion, 3: View, 4: Exit):
2
Enter faculty id:
111
Enter faculty name:
White
Enter department id:
11
Enter department id to exclude:
10
Faculty inserted successfully.
Choose an option (1: Insert faculty, 2: Insert with Department Exclusion, 3: View, 4: Exit):
3
fid: 101, fname: Johnson, deptid: 10, salary: 55000
fid: 102, fname: Lynn, deptid: 10, salary: 65000
fid: 103, fname: Lynn, deptid: 12, salary: 30000
fid: 104, fname: Black, deptid: 11, salary: 32000
fid: 110, fname: James, deptid: 10, salary: 54000
fid: 111, fname: White, deptid: 11, salary: 31000

```

Inserting faculty member / view of table after the insertion (option 1):

```

Choose an option (1: Insert faculty, 2: Insert with Department Exclusion, 3: View, 4: Exit):
3
fid: 101, fname: Johnson, deptid: 10, salary: 55000
fid: 102, fname: Lynn, deptid: 10, salary: 65000
fid: 103, fname: Lynn, deptid: 12, salary: 30000
fid: 104, fname: Black, deptid: 11, salary: 32000
fid: 110, fname: James, deptid: 10, salary: 54000
fid: 111, fname: White, deptid: 11, salary: 31000
Choose an option (1: Insert faculty, 2: Insert with Department Exclusion, 3: View, 4: Exit):
1
Enter faculty id:
112
Enter faculty name:
Kenny
Enter faculty department:
11
Faculty inserted successfully.
Choose an option (1: Insert faculty, 2: Insert with Department Exclusion, 3: View, 4: Exit):
3
fid: 101, fname: Johnson, deptid: 10, salary: 55000
fid: 102, fname: Lynn, deptid: 10, salary: 65000
fid: 103, fname: Lynn, deptid: 12, salary: 30000
fid: 104, fname: Black, deptid: 11, salary: 32000
fid: 110, fname: James, deptid: 10, salary: 54000
fid: 111, fname: White, deptid: 11, salary: 31000
fid: 112, fname: Kenny, deptid: 11, salary: 25200

```

Inserting faculty member / view of table after the insertion (option 1):

```

Choose an option (1: Insert faculty, 2: Insert with Department Exclusion, 3: View, 4: Exit):
1
Enter faculty id:
113
Enter faculty name:
Emma
Enter faculty department:
12
Faculty inserted successfully.
Choose an option (1: Insert faculty, 2: Insert with Department Exclusion, 3: View, 4: Exit):
3
fid: 101, fname: Johnson, deptid: 10, salary: 55000
fid: 102, fname: Lynn, deptid: 10, salary: 65000
fid: 103, fname: Lynn, deptid: 12, salary: 30000
fid: 104, fname: Black, deptid: 11, salary: 32000
fid: 110, fname: James, deptid: 10, salary: 54000
fid: 111, fname: White, deptid: 11, salary: 31000
fid: 112, fname: Kenny, deptid: 11, salary: 25200
fid: 113, fname: Emma, deptid: 12, salary: 24000

```

Inserting faculty member with exclusion (option 2) / view of table after insertion:

```

Choose an option (1: Insert faculty, 2: Insert with Department Exclusion, 3: View, 4: Exit):
2
Enter faculty id:
114
Enter faculty name:
Preston
Enter department id:
10
Enter department id to exclude:
11
Faculty inserted successfully.
Choose an option (1: Insert faculty, 2: Insert with Department Exclusion, 3: View, 4: Exit):
3
fid: 101, fname: Johnson, deptid: 10, salary: 55000
fid: 102, fname: Lynn, deptid: 10, salary: 65000
fid: 103, fname: Lynn, deptid: 12, salary: 30000
fid: 104, fname: Black, deptid: 11, salary: 32000
fid: 110, fname: James, deptid: 10, salary: 54000
fid: 111, fname: White, deptid: 11, salary: 31000
fid: 112, fname: Kenny, deptid: 11, salary: 25200
fid: 113, fname: Emma, deptid: 12, salary: 24000
fid: 114, fname: Preston, deptid: 10, salary: 45600

```

Inserting faculty member with exclusion (option 2) / view of table after insertion:

```

Choose an option (1: Insert faculty, 2: Insert with Department Exclusion, 3: View, 4: Exit):
2
Enter faculty id:
115
Enter faculty name:
Alicia
Enter department id:
12
Enter department id to exclude:
10
Faculty inserted successfully.
Choose an option (1: Insert faculty, 2: Insert with Department Exclusion, 3: View, 4: Exit):
3
fid: 101, fname: Johnson, deptid: 10, salary: 55000
fid: 102, fname: Lynn, deptid: 10, salary: 65000
fid: 103, fname: Lynn, deptid: 12, salary: 30000
fid: 104, fname: Black, deptid: 11, salary: 32000
fid: 110, fname: James, deptid: 10, salary: 54000
fid: 111, fname: White, deptid: 11, salary: 31000
fid: 112, fname: Kenny, deptid: 11, salary: 25200
fid: 113, fname: Emma, deptid: 12, salary: 24000
fid: 114, fname: Preston, deptid: 10, salary: 45600
fid: 115, fname: Alicia, deptid: 12, salary: 28440

```

Program Termination (option 4):

```
Choose an option (1: Insert faculty, 2: Insert with Department Exclusion, 3: View, 4: Exit):
```

```
4
```

```
Terminating program.
```

```
Process finished with exit code 0
```

```
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```