**COMP 8157 | Advanced Database Topics | Section 03 Assignment 2**

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1. Database Schema Design (1 marks)

Create a database name “ADTAssignment2” with the following table:

`program` (programID, name)

`depCourse` (courseID, deptName, programID) `users` (userID, programID)

`courseSiteVisit` (visitID, courseID, userID, date)

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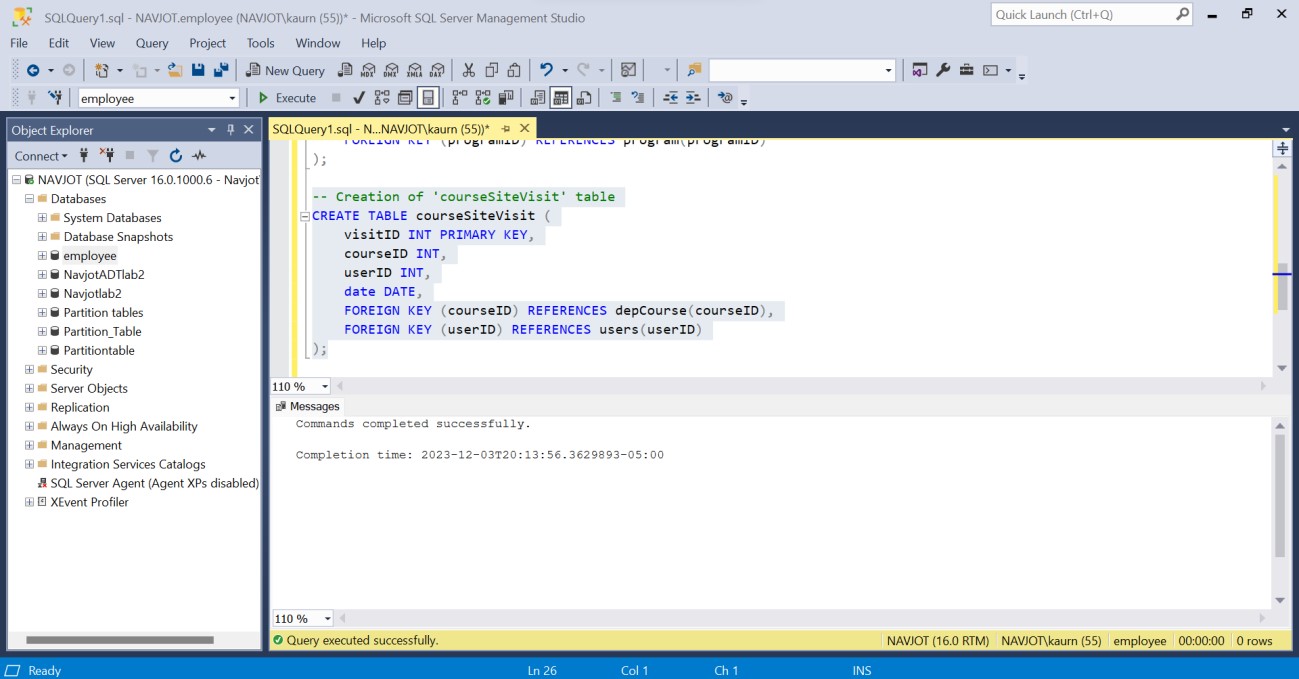
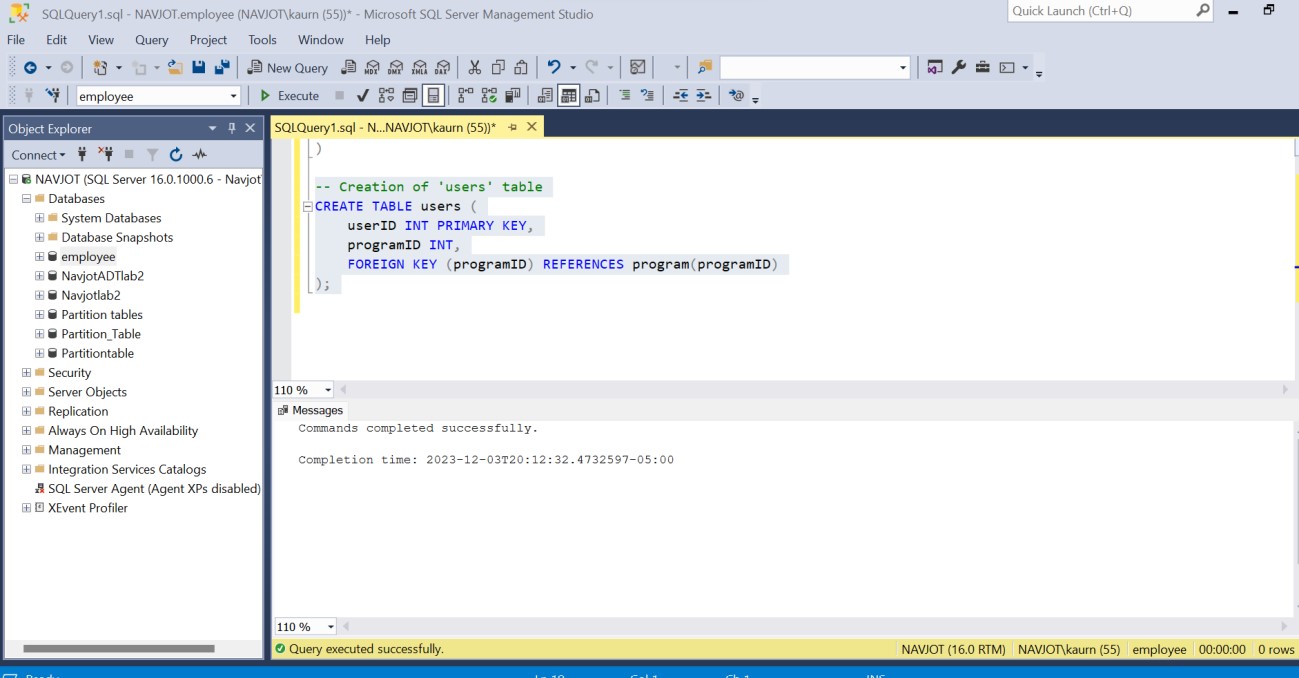
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1. Data Population (1.5 mark)

Populate each table to meet the specified criteria:

Insert sample data,

1. there are at least two departments (for example, Computer Science and Maths).
2. there are at least 2 programs (for example, undergrad and Master).
3. there are at least 2 courses in each program per department.
4. there are at least 3 users in each program.
5. populate the courseSiteVisit table with at least 100 records with following criteria:

i)there are at least 2 users visited all courses.

1. all users should have visited at least 1 course.
2. each user should have visited at least 1 course multiple times on the same date.
3. each user should have visited multiple dates per a single course.

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Tables are created:

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Tableau was employed for data visualization, and the relationship in Tableau was established as follows:

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1. The total number of times a course has been visited or accessed by all users.

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In this table, you can observe the visit counts for each course made by the 6 users.

1. The total number of visits for each course, categorized by program.

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Description automatically generated

The table is organized by program and color-coded, displaying the overall visit count of each user for every course.

1. The total number of students or users enrolled in each program.

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A screenshot of a computer

Description automatically generated

In the image provided, the table illustrates the total number of students enrolled in each program.

1. The total number of unique visitors per department by program.

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In the image above, the table depicts the total count of unique visitors in each department, organized by program. As we generated a minimum of 3 users in each program in section 2(d), the table reflects accurate results.

1. The most recent date (or last date) on which a user visited each course.

A screenshot of a computer

Description automatically generated

In the displayed image, the most recent visit date for each course is visible. Hovering over individual data points will reveal the corresponding latest visit date for that specific course. Refer to the image below for clarification:

1. The number of times a user has visited each course.

A screenshot of a computer

Description automatically generated

The presented table provides an overview of the total visit counts for each user across different courses.

1. The user who has visited a course the most (i.e., most frequent visitor per course), along with the visit count.

A screenshot of a computer

Description automatically generated

The table displayed above indicates the most frequent visitor for each course, presented in a ranked view denoted by "1". Therefore, for each userID marked with "1", that user holds the position of the most frequent visitor for the respective course.

1. The user who visited a course the most times in a single day. (i.e., most frequent visited user in single day per course)

A screenshot of a computer

Description automatically generated

The image above displays the most frequent visitors for each of the 4 courses in a single day. This presentation follows a ranked view, indicating the userID that was the most frequent visitor for each course

1. Longest visit streak days per user per course (i.e., the maximum number of days in a row that a user has accessed or engaged with the course site)

A screenshot of a computer

Description automatically generated

The presented table above illustrates the longest visit streaks for users, calculated on a per-day basis for each course.

1. Longest gap between visit per user and number of days in single course.

A screenshot of a computer

Description automatically generated

The table above provides counts of the longest gaps, calculated on a per-day basis, between each visit for each user in each course.

1. The user who visited the most courses within a short duration.

A screenshot of a computer

Description automatically generated

This table displays the visit count of each user who has visited the most courses within the shortest amount of time.