Week 9 Drop In Session

Overview

- Introduction to Assignment 5
- Questions about Quiz 2
- Questions about Week 9 material
- Other questions

Assignment Grades

- NB: **All grades issued are provisional** – they will be confirmed by the CEGE Interim Exam Board meeting which will be held in June or July 2021 or by the final exam board in November 2021
  - e.g. marks might be adjusted due to copying, plagiarism, late submission (or in very very very rare cases material irregularities) etc

Assignment 5

- Brings together everything we've covered on the module
  - Decision making
    - (and aggregating from facility to asset management)
  - Designing a database
  - Creating a database structure (DDL)
  - Inserting data (DML)
  - Querying the data to provide evidence for decision makers (SQL)

Things to do

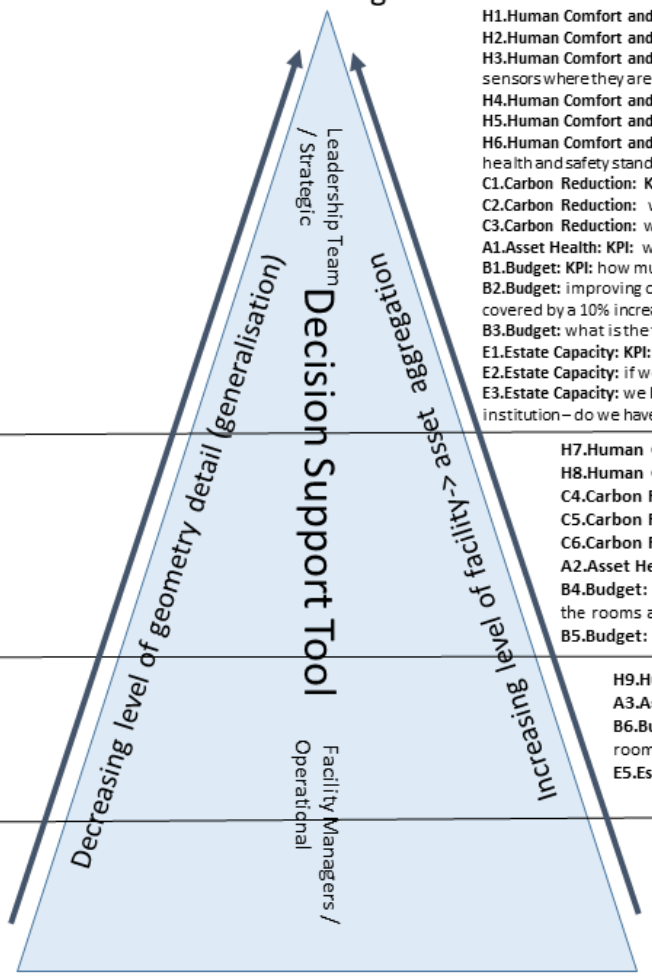
- Select a topic
- Identify 3 nested asset types – i.e. 3 features that have location
- Give your system a title
- Write 3-5 aims of the system
- Create a list of decisions your system will answer

Things to do

- Identify 7 decisions you will need evidence for
- Use the information to create a pyramid
- (Sketch out an ER diagram)

Things to do

- Write SQL to
  - Create the tables
  - Create the constraints
  - Insert the data – 3 rows per table
  - Create the views (optionally)
  - Query the data for the 7 decisions



Decisions

H1.Human Comfort and Safety: KPI: What % of our buildings are fully accessible?
H2.Human Comfort and Safety: KPI: What % of our rooms were outside comfortable temperature range for more than 1 day this year?
H3.Human Comfort and Safety: we have a grant of £5000 from the government for workplace comfort – does this cover the cost of adding temperature sensors where they are missing?
H4.Human Comfort and Safety: we need to decide between a roof garden and solar panels – do we have sufficient open space on campus already?
H5.Human Comfort and Safety: do we have sufficient space for fire safety zones on campus
H6.Human Comfort and Safety: we're planning to replace the Ethernet across campus - how many people need to move out of the buildings to maintain health and safety standards
C1.Carbon Reduction: KPI: What is the energy consumption per person across the estate?
C2.Carbon Reduction: what are our overall energy savings if we make all the interventions?
C3.Carbon Reduction: which carbon reduction intervention will give us most value for money?
A1.Asset Health: KPI: what % of our estate (by room) is in good serviceable condition?
B1.Budget: KPI: how much is our annual cost for interventions on elements of the estate in critical condition?
B2.Budget: improving our estate will help us to make this a world class university – what is the cost the cost of all possible interventions, and will it be covered by a 10% increase in student fees?
B3.Budget: what is the total cost of Ethernet replacement?
E1.Estate Capacity: KPI: how much floor space is there per person in our university?
E2.Estate Capacity: if we convert all the engineering labs to computer labs how many more people can we add?
E3.Estate Capacity: we have the opportunity to recruit an eminent professor and 20 staff that would greatly enhance the cross-disciplinary profile of our institution – do we have space?

University (+ethernet cables)

H7.Human Comfort and Safety: which, if any, of our buildings are not meeting disability access regulations? [Links to H1]
H8.Human Comfort and Safety: are there any buildings that are too hot or too cold? [Links to H2]
C4.Carbon Reduction: KPI: what is the energy consumption per person in each building? [Links to C1]
C5.Carbon Reduction: what energy savings (kWH) can we make in each building by installing triple glazing?
C6.Carbon Reduction: what are the per building energy savings by installing cladding and solar panels and triple glazing? [Links to C2]
A2.Asset Health: KPI: individual building condition, room and fixture health aggregated to building level [Links to A1]
B4.Budget: KPI: what is the budget needed to cover the cost of interventions per building including the total cost of interventions on the rooms and fixtures in each building? [B1]
B5.Budget: what is the total cost per building of the carbon interventions?

Buildings

H9.Human Comfort and Safety: are any rooms too hot or too cold [Links to H8]
A3.Asset Health: KPI: asset health of the rooms, fixture asset health aggregated to room level [Links to A2]
B6.Budget: what is the per room for room improvements budget needed cover the total cost of critical works on the rooms and associated fixtures? [Links to A5]
E5.Estate Capacity: how many people can we accommodate in each room at full capacity, 25% capacity? [Links to E1]

Rooms

H10.Human Comfort and Safety: do we need to replace any windows this year?
H11.Human Comfort and Safety: are any temperature sensors faulty?
A4.Asset Health: KPI: how many fixtures of each type are at the different condition grades [Links to A2]
B8.Budget: KPI: what is the per fixture cost of replacing each fixture? [A6]

Fixtures & Fittings (windows, temperature sensors)

Examples of spatial pyramids

- Sensor > Room > Building
- Room > Building > University
- Zone > City > Country
- Waiting room shelf > waiting room > railway station
- Book shelf >book shop > shopping mall
- Food storage rack > freezer > distribution centre

Spatial pyramids

- Don't go above country level as you'll have to deal with multi-national projection systems which will be too complicated/too much work for this assignment

Examples of Aims

- Aim 1: To improve the comfort levels of the workers at the bus station by ensuring that waiting rooms and break rooms are not too hot or too cold and that the pollution levels in the bus station are not too high.
- Aim 2: To ensure that buses run on time and that their departure from the bus station is tracked and management notified of any bus that departs more than 5 minutes late.
- Aim 3: To provide a better service to customers in terms of indoor navigation and signage, particularly for those with visual impairments
- Aim 4: To provide an online lost property service that tracks lost property digitally in the warehouse

Examples of Aims

- Aim 1: develop a comprehensive capital investment programme that will deliver a world-class estate for Centennial, to meet future challenges, the need for growth, student expectations, legislative requirements and technological and environmental factors
- Aim 2: improve planning and reporting processes to ensure that the campus can adequately support the staff and students in a safe and comfortable manner, and in compliance with health and safety regulation
- Aim 3: continue to invest in short and long-term maintenance at a level that will ensure that the improvements in the estate are sustainable and cost effective

Additional Information

- This is data that - in the Centennial example - we are storing in the parameters table.
- I haven't asked specifically for a parameters table in this assignment so you can just 'hard code' the information in the SQL as long as it is also declared in this list.
  - You can also use a parameters table if you like, but make sure you still provide the information in this list!

Additional Information

Data Output | Explain | Messages | Notifications

	parameter_id [PK] integer	parameter_type character varying (100)	parameter_name character varying (150)	parameter_subname character varying (150)	parameter_value double precision	parameter_units character varying (100)	date_created date
1	1	cost	windows	single glazed	1050.2	£ per sq m	2020-11-11
2	2	cost	windows	double glazed	1770	£ per sq m	2020-11-11
3	3	cost	windows	triple glazed	3050.3	£ per sq m	2020-11-11
4	4	energy saving	windows	triple over double	50	kwH per sqm per year	2020-11-11
5	5	energy saving	windows	triple over single	148	kwH per sqm per year	2020-11-11
6	6	cost	rooms	total refurbishment	20000	£ per room	2020-11-11
7	7	cost	rooms	annual update - computer lab	10000	£ per room	2020-11-11
8	8	cost	rooms	annual update - classroom	3500	£ per room	2020-11-11
9	9	cost	rooms	annual update - kitchen	7500	£ per room	2020-11-11
10	10	cost	rooms	annual update - other	1000	£ per room	2020-11-11
11	11	cost	rooms	annual update - engineering lab	25000	£ per room	2020-11-11
12	12	energy consumption	rooms	energy consumption	350	kwh per sqm per year	2020-11-11
13	13	fault	temperature_sensor	min temperature value	15	degrees c	2020-11-11
14	14	fault	temperature_sensor	max temperature value	30	degrees c	2020-11-11

Hints

- Do sketch an ER diagram – it isn't needed the assignment but will help you out

Hints

- Whenever you are asked for a table name provide it as *schemaname.tablename*
- Use lowercase for all the tablenames

Hints

- You will definitely need 3 tables (one for each pyramid level)
- You can create as many more as you like – but remember this is one assignment
  - You have other modules!
  - It is better to have fewer tables and queries that work than lots of tables but then simple queries that don't join data from multiple tables

Hints

- Make sure you test your scripts as follows:
  - Copy/paste each script into PGAdmin and run them in sequence
    - Then run the SQL for your decision queries to see if it works and gives the answer you expect
  - Use the test website and check the report that you get via e-mail
    - Your SQL MUST work on the test website as this is the same code that does the automated checking

Hints

- PDF and Screenshot
  - You should create the data in your database **and then take a screenshot** of the data displayed in QGIS
  - This screenshot should be uploaded as a PDF
  - (As with assignment 2 you'll get full marks here if your INSERT scripts work and generate the same data)

Submission Summary

- **Submission Method:**
  - *Completing an online form with information about your system*
    - *The system title*
    - *3-5 aims*
    - *Any additional information required in your queries*
    - *The three asset tables (which have a location column)*
    - *Details for 7 decisions*
      - *Description*
      - *List of tables*
      - *SQL*
      - *Level of pyramid*
  - *A PDF of your pyramid uploaded via Moodle/Turnitin*
  - *A PDF of your map uploaded via Moodle/Turnitin*
  - *Three (optionally four) separate SQL scripts via Moodle/Turnitin*

Assignment 5 - Database Creation

Print Blank

1 * Please enter your 7-character UCL username - e.g. ucfscde, ucftmr2

2 * Please type the title of your system (100 characters max).

3 * Aim 1 for your system (500 characters max)

4 * Aim 2 for your system (500 characters max)

5 * Aim 3 for your system (500 characters max)

6 Aim 4 for your system (500 characters max)

7 Aim 5 for your system (500 characters max)

8 Please provide any additional information that your system relies on, as a numbered list (e.g. purchase costs, healthy air quality values, energy savings from installing triple glazing)

9 * Provide the name of the asset (table) at the bottom of your pyramid. Make sure this is IDENTICAL to the table name created in your SQL.

10 * Provide the name of the asset (table) in the middle of your pyramid. Make sure this is IDENTICAL to the table name created in your SQL.

11 * Provide the name of the asset (table) at the top of your pyramid. Make sure this is IDENTICAL to the table name created in your SQL.

Page 1 of 7

Save | Next Page >>

« PREVIOUS ACTIVITY
CHECK YOUR SCRIPTS HERE

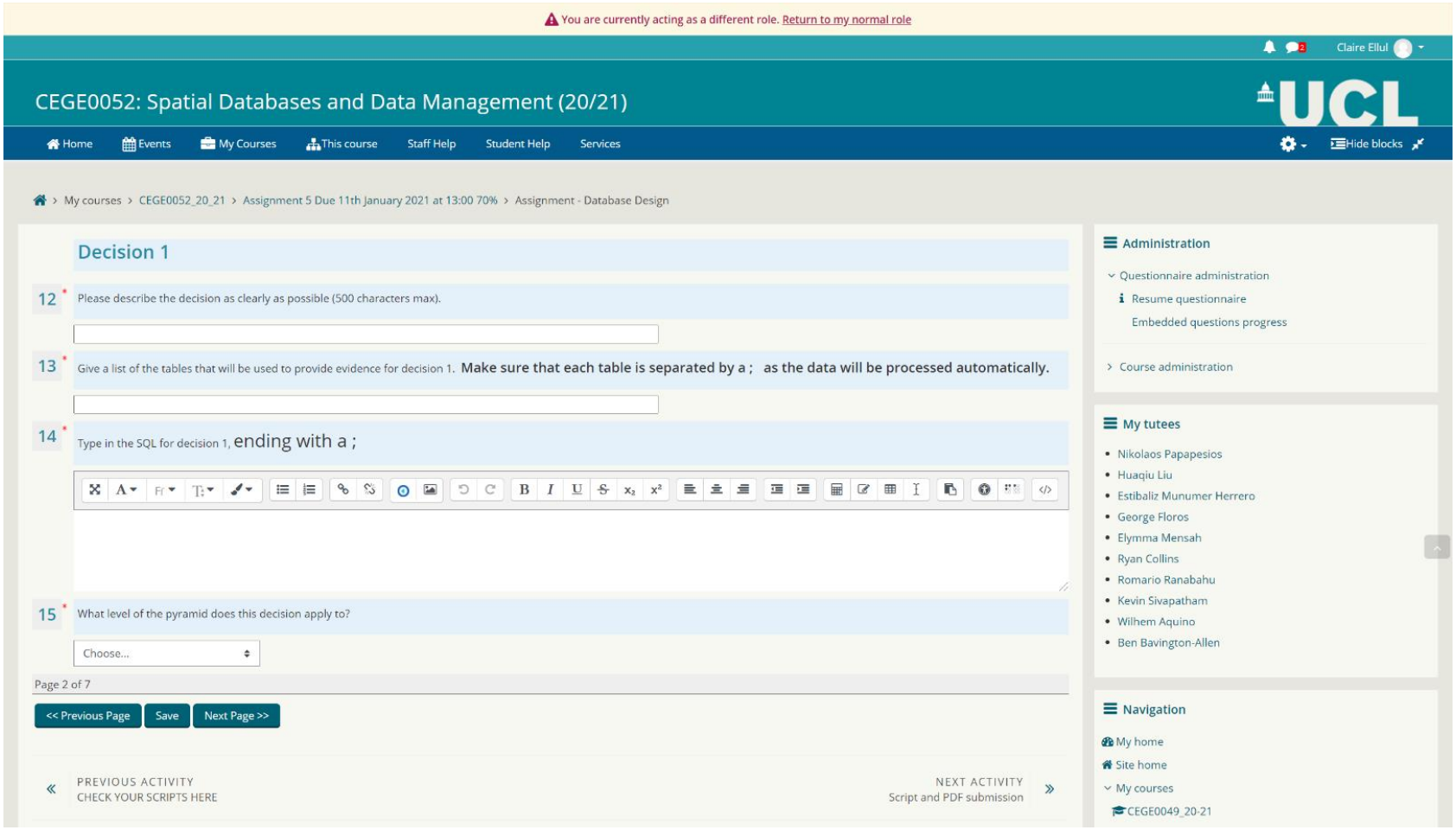
NEXT ACTIVITY
Script and PDF submission »

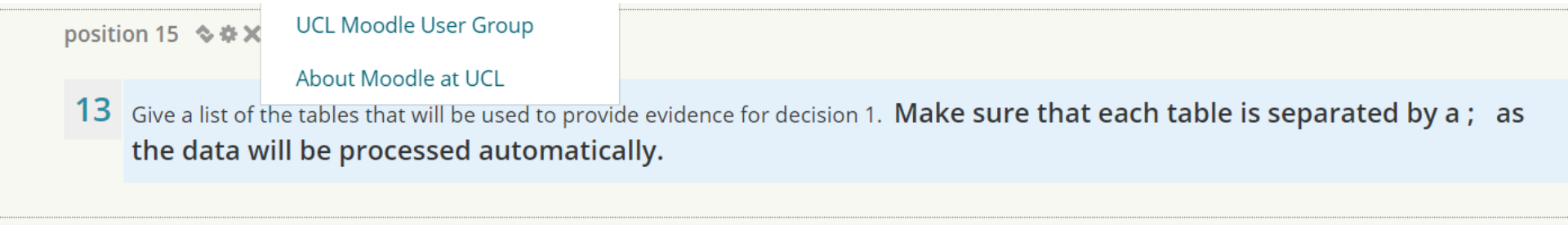
Jump to...

Administration
- Questionnaire administration
  - Answer the questions...
  - Embedded questions progress
- Course administration

My tutees
- Nikolaos Papapesios
- Huaqiu Liu
- Estibaliz Munumer Herrero
- George Floros
- Elymma Mensah
- Ryan Collins
- Romario Ranabahu
- Kevin Sivapatham
- Wilhem Aquino
- Ben Bavington-Allen

Navigation
- My home
- Site home
- My courses
  - CEGE0049_20-21
  - CEGE0094_20/21
  - CEGE0095_20-21
  - XIMP0011: T-28: Railway Management
  - CEGE0017&18
  - CEGE0042_19-20
  - CEGE0049_19_20
  - CEGE0052_20_21
    - Participants
    - Badges
    - Grades
    - Assignment 5 Due 11th January 2021 at 13:00 70%
      - Assignment - Database Design
  - CEGE Staff
  - CEGE Student Information
  - CEGE: Personal Tutorials
  - Computer Science Ethics Training
  - IEP Central
  - UCL Here East Facilities Information
  - The Writing Lab
  - Digital Skills Development


You are currently acting as a different role. Return to my normal role
Claire Ellul
CEGE0052: Spatial Databases and Data Management (20/21)
Home
Events
My Courses
This course
Staff Help
Student Help
Services
Hide blocks
My courses › CEGE0052_20_21 › Assignment 5 Due 11th January 2021 at 13:00 70% › Assignment - Database Design
Decision 1
12 Please describe the decision as clearly as possible (500 characters max).
13 Give a list of the tables that will be used to provide evidence for decision 1. Make sure that each table is separated by a ; as the data will be processed automatically.
14 Type in the SQL for decision 1, ending with a ;
15 What level of the pyramid does this decision apply to?
Choose...
Page 2 of 7
<< Previous Page
Save
Next Page >>
PREVIOUS ACTIVITY
CHECK YOUR SCRIPTS HERE
NEXT ACTIVITY
Script and PDF submission
Administration
Questionnaire administration
Resume questionnaire
Embedded questions progress
Course administration
My tutees
Nikolaos Papapesios
Huaqiu Liu
Estibaliz Munumer Herrero
George Floros
Elymma Mensah
Ryan Collins
Romario Ranabahu
Kevin Sivapatham
Wilhem Aquino
Ben Bavington-Allen
Navigation
My home
Site home
My courses
CEGE0049_20-21



- Make sure you include ALL the tables that you reference in the SQL, **including their schema name**

Assignment 5

- You can only submit the form once but you can save your work and resume as many times as you like!

Getting Help

- Post questions on Moodle and I will try to answer them within a reasonable time frame
  - You can post at any time through the Christmas break .. no promises on how quickly I'll respond though!

Getting Help

- NB: this is an assignment so don't post anything on Moodle that will allow someone else to copy your work!

Getting Help with SQL

- We've also arranged some support for the **SQL element** of this assignment (as we haven't had face to face lab sessions where we could give you some SQL guidance)

SQL Help – the rules

1. You will be assigned a specific person to answer your questions about SQL
2. You can e-mail them for support as follows:
    1. From midnight UK time on Monday 14th December 13:00 UK time Friday 18th December
    2. From midnight UK time on Monday 4th January to 13:00 UK Friday 8th January

    Any e-mails received outside this time will be deleted.

NB: You can of course use delayed send in your e-mail if you want to write it outside these hours

SQL Help – the rules

1. **The support team will be able to provide help specifically with SQL troubleshooting** – i.e. diagnosing errors in SQL or thinking about approaches to queries - not with the other components of the assignment (as they didn't set the assignment so might not know what is required)
   - For anything non-SQL post on Moodle

SQL Help – the rules

1. The support team will each dedicate **one hour a day** to questions, answering them on **a first come first served basis** (i.e e-mails received at 00:01 am will be answered first and the support team will work through from there ..)

2. They are in different time zones so you might have to wait a while for your answer

SQL Help – the rules

1. You should send them **as much information as possible** in the e-mail so that they can answer the question without having to ask them for further information (which will move your query to the bottom of the queue)
   - e.g. if you have a query that doesn't work, send them your create table, constraint and insert scripts and the ER diagram sketch if you have one, so that they are working on the same data as you are

SQL Help - the rules

- This is an assignment so you need to do the work yourself – the team might only give you hints rather than answers!
- You MUST cc me into the e-mail as well so that I can issue any general clarifications if necessary
  - As I set the assignment it is possible the team aren't fully aware of what I'm after ..

SQL Help - the rules

- Students whose surname begins with letters from A to M (inclusive) should e-mail:
  - Alyssa Liu: huaqiu.liu.18@ucl.ac.uk
- Students whose surname begins with letters from N to Z (inclusive) should e-mail:
  - Esti Munumer Herrero estibaliz.herrero.17@ucl.ac.uk
- (don't forget to CC me as well)

SQL Help - the rules

- This is the first time we're running this type of support
  - (only needed due to COVID)
- We will evaluate how it is going and see if the 1 hour per day * 2 people works in terms of demand