INFO90002 2024 Semester 1 - ASSIGNMENT 1

Weighting: 20% of your total assessment

Group Assessment: Groups of four (4) students **from the same tutorial**

Assignment deadline: Check Canvas

Assignment submission: Canvas

entity

attribute

CASE STUDY: Karogold Real Estate

Karogold Real Estate offers furnished flats for renters who want a full flat or are happy to share common areas (lounge room, kitchen, bathroom). Some flats have bedrooms and ensuite/bathroom for each bedroom. But in some flats bathrooms have to be shared.

Each flat includes a unique flat ID, address (flat number, building number, street, suburb, postcode), number of single rooms (bedrooms) available and number of bathrooms. Each single-room (bedroom) in the flat has a room number (1,2,…), and a record whether it has its own bathroom and built-in-robe (BIR).

Since every flat needs to be furnished, there is a list of furniture and its allocation. For every piece of furniture, Karogold Real Estate records item id, name (bed, fridge, …), description, purchase price (price the company paid for the item), purchase date, allocation (e.g. it may be still in storage or it could be at a particular flat). For furniture pieces in flats there is a record stating in which flat each piece is and date it was placed there. If an item gets broken and cannot be repaired, it is removed from the flat so date removed from the flat is recorded. It is also marked as not available (it is still on the list but not available for allocation to flats, i.e. it is not in storage and not in a flat). Also an item may be waiting to be repaired (e.g. a fridge or a washing machine may be in storage but not available). After the item is fixed, it is marked as available.

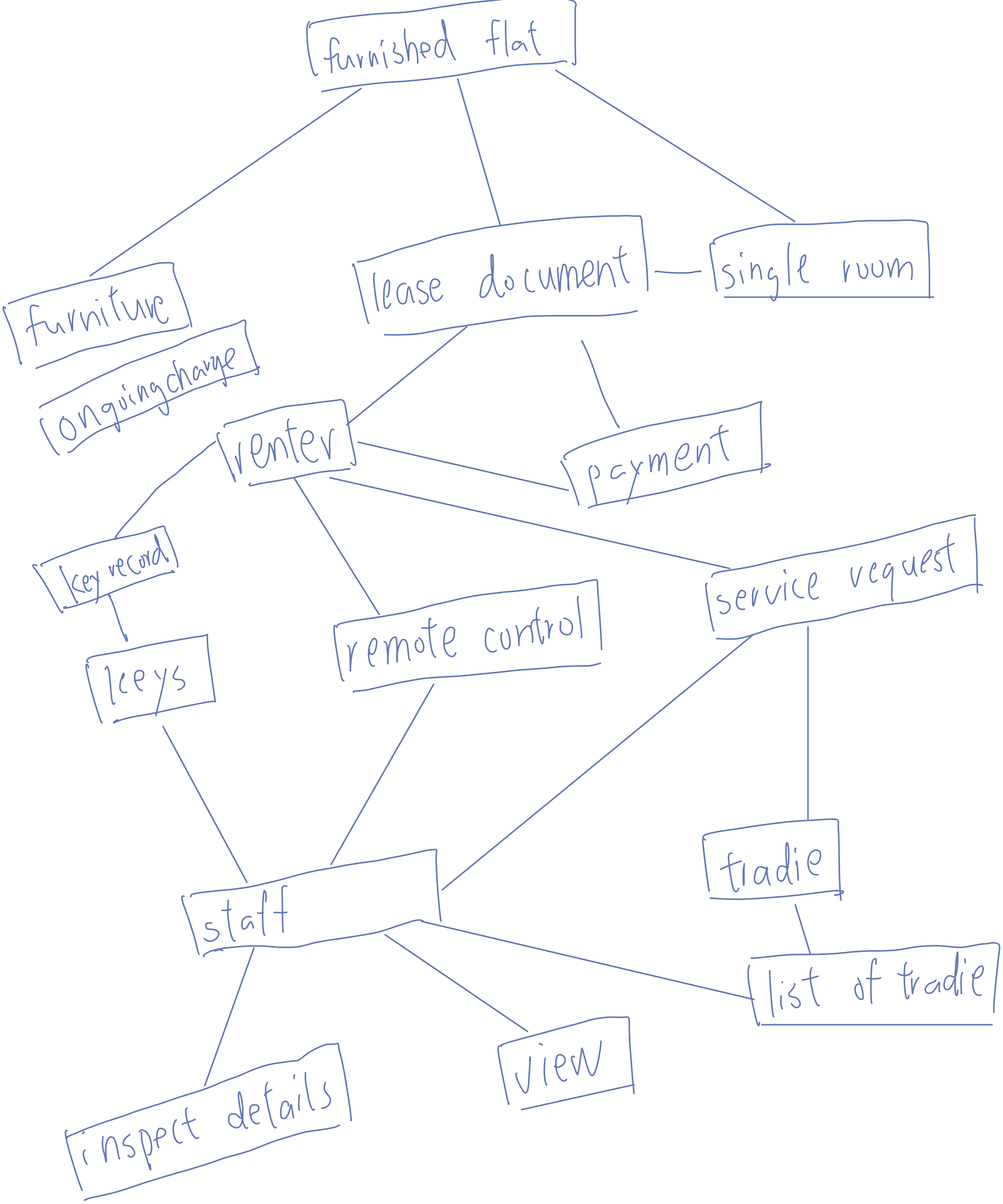
When a flat or a bedroom in the flat is rented out, there is a record created. For each renter, the agency records id, first and last name, email, mobile, and citizenship status (e.g. "Australian citizen", "'Permanent Resident', 'Student Visa', "Work visa", etc.).

When a bedroom or the whole flat is rented by a new renter, a lease document is created stating lease number, lease start date, negotiated monthly fee, end of lease date (it does not mean the renter moves out, but monthly charge can change at the end of lease). At the end of lease if the renter wants to stay a new monthly charge is negotiated (or it can be an agreement of no change to the monthly fee) and its start date is recorded. Later depending on various conditions this monthly cost can be re-negotiated again. Every time a new monthly charge is negotiated, a record with the new charge ID, start date and amount is created. This way the system keeps history of monthly fee changes.

When the renter moves out, that date will be recorded.

If a person rents the whole flat, the lease is created for the whole flat with the name of that person.

If a single person is happy to rent one bedroom and share common areas, the lease document is created for that one person with the note which bedroom this person is renting. When the second person moves into the next bedroom, another lease document is created stating which bedroom this second person will occupy.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Important: the renter does not have to move out at the end of the lease. They can stay in the property

1. paying month by month, or
2. sign a new lease.

The following 2 paragraphs are just to clarify the difference between options 1 and 2, they do not affect your model.

> Option 1 gives renter and the agency flexibility as the renter can give a 30-day notice that they want to move out at any time and in 30 days they are free to move out. Without the lease document, the agency can notify the renter that in 2 months time their monthly charge will be increased.
>
> Option 2 means that the agency cannot increase the monthly fee till the end of the lease but the renter is liable to pay until the end of the lease or until a new renter is found, even if they moved out.

key set

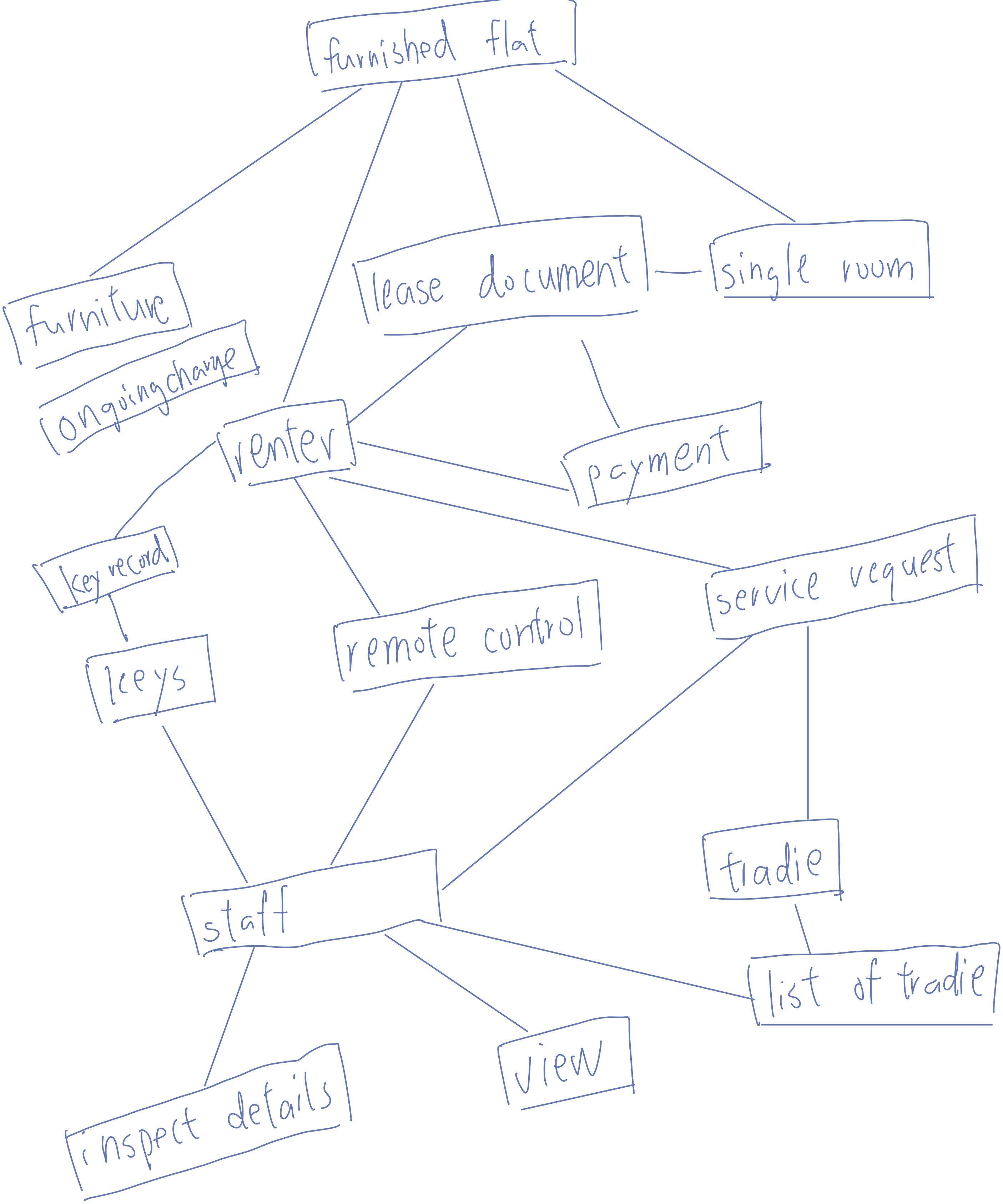
The agency keeps several sets of keys for each flat (at least 2 sets). One set always stays at the agency, other sets are given to renters. For each set of keys, there is a record containing set ID, which flat the keys open, the number of keys in the set and comments (e.g. stating that there is a balcony or windows keys). When a flat (or a bedroom) is rented out, the renter gets a set of keys and the record is created noting which set is given to which renter and the date of them receiving the keys. When a renter terminates the lease and vacates the flat, they return the keys. The return date is recorded and a comment may be made if any keys are missing or damaged.

In cases of a missing or damaged key, the agency first follows up with the former renters to see if they can locate and return the keys. A comment and the corresponding date of the comment is noted in the system. If not located, the agency orders a new key. The comment is added with the date of getting a replacement key and which key in the set (e.g. main door, balcony door, etc.).

Similarly if a flat has a garage or a parking space with a roller door, there would be a record on remote controls, including remote control number, flat it belongs to and comments specifying type of the remote control and any other comments. Types of remote controls could be M842 2-button, Boss HT4, Centurion Nova, etc. When the flat or a bedroom is rented out and there is a remote control associated with that flat, the record is made which remote control was given to a renter on which date. When the renter moves out, they return the remote control (same as the keys) and the return date is recorded. remote control keyset

Renters pay the rent monthly based on the monthly charge. Every time a payment is made the agency records paymentID, payment date, amount paid, renter who made a payment and what property the payment is for (room, if applicable, and flat). Note, as in real life sometimes people do not pay the full amount due and sometimes they pay extra to cover either the past debt or to have credit for the future. Thus, there is a need to keep track of debt or credit for each tenant (if applicable).

When something goes wrong in the flat (e.g. broken window glass or Internet stops working), the renters can lodge a service request by filling an online form or calling the agency. The service record would have a record number, date of the service request, which flat has a problem, renter who made a notification, and details of the problem.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request update

A staff member from the agency would follow up on the problem and organise a repair/resolution. This staff member would add date of repair, its cost and their own details as staff in charge. For each repair / resolution there may be details of the tradie who performed the repair (see more details below).

Staff details that the agency records are staff ID, last and first name, email and mobile. The same staff member may have different responsibilities, including responding to service requests, inspecting flats to ensure renters keep them clean, showing empty flats to prospective renters, etc.

An agency keeps a list of tradies companies for various tasks. This list would contain plumbers, electricians, handymen, etc. Each company will have a unique ID, company name, email and contact phone number.

If the service request requires help from a tradie, one of such companies is contacted. A company sends a tradie and details of the tradie are entered into the system. For each tradie, the record has unique ID, first and last name, mobile number, company affiliation, comments with certification details (e.g. only certified electricians are allowed to conduct service or repairs). If a tradie brings in an assistant, the details are recorded in the comments, no special record is created for the assistant(s). If the agency is happy with this tradie, they try to invite the same tradie again for the next job.

If a piece of furniture (e.g. fridge, washing machine, chair) gets broken, a different online form needs to be filled requesting item replacement. The record of furniture replacement is created containing request number, date of request, renter who reported the breakage, flat where replacement is needed, item that needs replacement (the renter can copy item ID from the sticker on the item). Later when replacement item is delivered, the record is updated with the date when replacement happened, replacement itemID and staff who organised replacement.

Agents conduct regular inspections of rented flats (approximately every 6 months). Also a flat is inspected when a renter moves out.

An Inspection details would include inspection ID, date of the inspection, the inspected flat, inspecting agent, notes of the inspection (e.g. "dirty carpets, need to organise cleaning at renters' expense").

Empty flats or bedrooms within a flat need to be shown to potential renters. Every time viewing is completed, a record is created showing date and time of the session, flat shown (even if the flat has only one unoccupied bedroom, the renter would want to inspect common facilities), agent in charge of viewing and number of candidates attending viewing. Each viewing has a unique ID.

If you are not sure not sure how to interpret any part of the case study, do not guess, post a question on Ed Discussions.

TASK: Your group needs to provide:

I) The record of group members contribution (see Appendix).

II) A physical Entity Relationship model using Crows Foot notation suitable for a MySQL relational database version 8.0 or higher. Export an image of the ER model (you can export as pdf).

III) Brief explanatory notes (optional). For example, if you are replacing a very complex PFK with a surrogate key, you need to specify what would be PFK in that entity that you replaced.

IV) A copy of your final workbench file (format .mwb).

Assignment Submission:

ONE GROUP MEMBER should submit the assignment via the CANVAS LMS
https://lms.unimelb.edu.au

ONE PDF document named as your Group number id (e.g. Wed10-1.pdf) **on or before the deadline**, containing:

- Student name and Student Number of every student in your group
- Work breakdown per team member (contribution listed and also measured 1-100% per team member)
- Legible image of your Physical ER Model in Crows foot notation (missing image and only mwb results in 10% penalty)
- Explanatory notes (maximum 150 words) – optional since your model should be sufficiently self-explanatory. For example, if you are replacing a very complex PFK with a surrogate key, you need to specify what would be PFK in that entity that you replaced.
  Your statements and design decisions must not contradict the case study and the discussions on Ed Discussions Forum.
- (Optional) You may provide some limited explanation behind your design decisions (e.g. where you replace 'too many' natural keys with one surrogate key)

N.B. If you fail to submit legible models you will be penalised 10% of your total grade for this assignment.

ONE COPY of your team's final MySQL Workbench modelling file (with an **.mwb** extension) of the Physical ER model **on or before the deadline**. If this file is not submitted, the penalty can be up to 20% (higher if the marker has difficulty reading your diagram).

Submissions via email **will not be accepted**.

Late Submissions

Assignments that are late without a formal granted deadline extension from the subject coordinator will attract a penalty of 10% for **each Academic Day** as per the School of Computing and Information Systems policy.

Appendix

Assignment 1 group members contribution/ Work breakdown

Tute   Group no.

Group members list (names and IDs and %% contributed); put the team leader as the first one.

1.
2.
3.
4.

Workload breakdown

(Add rows to the table as needed)

Activity (e.g. brainstorm the initial list of entities)	**Planned due date**	**Actual delivery**	**Team member responsible**	**Comment (e.g. why the task was reallocated to another team member or discussions with the team member in charge of the task)**

The first draft of this table must be done at the first group meeting, then update the table as the group progresses through the assignment. Keep notes of every member contribution or lack of response.

Contribution to group work rules:

%% is reflection how much the member contribution to the group's work **improved the outcome** so only contribution to developing the solution counts. E.g. a member attending all meetings but not providing any parts of the solution contributed 0%.

In case of equal contribution by all group members, everyone's contribution is 100%; for members with lower contribution, estimate their contribution in relation to members contributing 100%.

In case of an unresponsive group member, contact your tutor and subject coordinator immediately, **do not wait till closer to the deadline**. In case of group issues, if they cannot be resolved within the group, please contact your tutor ASAP.

Marking rubric is provided separately.