Formal Requirements for Your Pre-Exam Requirement

Passing of the pre-exam requirement is the prerequisite for participating in the exam. The pre-exam is graded only on a pass/fail basis.

For technical reasons the grading system will show a "pass" grade in your list after approximately June 25. If you do not complete your pre-exam project or paper and/or do not present it, this will be changed to "fail" afterwards.

For the pre-exam requirement, you have the choice between a "standard project" and a "free project".

Teams:
Team size: two or three people

Database Creation on the Lab Server:
If you want to implement your system on the lab server, send an email to Dr. Besner (manfred.besner@hft-stuttgart.de) with the list of all team member names and email addresses as well as your desired database name. He will then create a database in MySQL to which all team member have access.

Standard project:
This description refers to the standard type of database project that you can do for the pre-exam requirement. Develop a database with a small GUI written in Java or some other programming language. Use an appropriate interface (JDBC, ODBC,...) to interface between your application and your database. Chose a relational DBMS (do not use Microsoft Access).
Structure your documentation as shown in the later pages in this document here.
The graphical user interface should be working, but the complexity or beauty of the GUI is not critical for passing the project.

Free Project:
If you feel the standard project is not very interesting to you, and your experience extends beyond that, you may do an alternative "free" project if it is relevant to the field of databases and sufficiently advanced. For instance you could chose a different type of database system (NoSQL, In-Memory, SAP Hana, etc.) or explore a specific topic in more depth. Please ask me by Email to approve your topic (see deadlines).

Deadlines:
It is possible to turn in deliverables earlier than the set deadline.

Deadline	Activity	Place
Fr, 19 April 2024	Register project team (You still need to register in the LSF for the pre-exam requirement).	Project Groups Wiki in our Moodle course in the Exercises folder

Deadline	Activity	Place
Sun, 12 May 2024	Send proposal for free project by email to Prof. Koch for approval	Email
Fri, 14 June 2024, 24.00 h	Upload your project documentation as a single PDF file to the project database.	In our Moodle course (in the Project Documentation database in the Exercises folder)
Thu, 20 June 2024	Presentation of projects with live demo. Everyone's presence at HFT is mandatory for this!	In the LIDA, using the LIDA server or bring your own computer (check early whether you need any adapters!).

Formatting requirements for everyone:

Item	Requirements
Electronic Deliverable	• Absolutely make sure that your documents are readable! The regular text must be at least 11pt, text in diagrams at least 9 pt. Anything smaller will not be accepted!!! If necessary, enlarge diagrams or screenshots or turn them horizontally in your document. Having to zoom in and out all the time is very unpleasant to me! (You don't want to make me angry while I'm grading, do you...?) • Use page numbers. • Upload your documentation into the database inside the Moodle course. You find this database in the "Exercises" folder. • The documentation must consist of one single PDF file. (No zip-Archives or similar. If this presents a problem: talk to me!) • The PDF file must contain the complete code of your project, even if it has many pages. • Formatting of the file names: Make a filename composed of "2024SS" followed by the family names of the group members followed by a keyword describing the topic of your project or presentation. Use camel case. Example: 2024SSKochBesnerGenomicData.pdf
Quoting	In your documentation: list all sources that you have used (papers, books, websites, etc.) and mark the used sources within your text.Some guidelines describing which formats to use for citations are posted in the Moodle in the Exercises folder. You also find a scientific database paper there that can serve as an example where you can see how sources are quoted.
Oral Presentation	• per group:15-20 minutes presentation • All team members must take their share in the presentation.

Additional requirements for a free implementation project:

Contents	Details
Implementation	Implement it on your own laptop or on the LIDA server. You must show a live demo in the presentation.
Documentation (paper + PDF)	a. Cover page with title of the project, course name (Database Systems II) and semester, names + email addresses of the contributors b. Introduction (What is the project about, what are the objectives, who would use the system. Between half a page and one page) c. System Platform (A list of all systems you used (with version numbers), under what licences (open source, test licence, payed system), on which operating system). Include short installation descriptions of specific systems you used for fellow students who want to install the same environment (like source of download, is there an installer, etc.) d. Data (a short explanation of the contents, size, purpose, and sources of your data set. Display a few (10-20) data records as an example on paper. Include the complete data in the electronic version. If this presents a problem, talk to me). e. Operations (what did you do with the data, what type of analysis did you perform, list a few (at least 5) queries/use cases, include some screen shots) f. Conclusion (what did you learn from the project: what was difficult, what was easy, what was fun? Any recommendations for others doing a similar project?) g. Declaration about AI-Tools (You have two options: 1. "We have used neither ChatGPT, nor any other text generating tool." or: 2. "We have used ChatGPT (or some other text generating tool (please provide the name!) for the following sections:..." Provide a table in which you list in the leftmost column, which subsections of your list of contents are concerned, and in the righthand column, describe how you used the tool, which steps you undertook to verify the generated texts and which changes you made based on your verification. Be very specific about your usage of the tool! Just saying "we generated the text with it" is not sufficient! If you should have used such a tool without documenting this, it will be considered as cheating and results in failing of the pre-exam project, which means you may not participate in the exam. h. List of References (papers, websites, tutorials, manuals, whatever you have used)

Presentation	Use your documentation as "slides" • Briefly explain the topic and objectives of your project • log in to your system • show which data you are operating on • explain and demonstrate some operations that you did • explain your conclusions and experiences

(The following option will be granted only as an exception. Talk to me if you really want to do a seminar paper instead of an implementation oriented project.

Additional requirements for a free seminar paper:

Requirements	**Details**
Contents	Use the normal format of scientific papers, with • title, list of authors, date, place, affiliation (HFT Stuttgart) • abstract • introduction • main part • Declaration about AI-Tools (You have two options: 1. "We have used neither ChatGPT, nor any other text generating tool." or: 2. "We have used ChatGPT (or some other text generating tool (please provide the name!) for the following sections:..." Provide a table in which you list in the leftmost column, which subsections of your list of contents are concerned, and in the righthand column, describe how you used the tool, which steps you undertook to verify the generated texts and which changes you made based on your verification. Be very specific about your usage of the tool! Just saying "we generated the text with it" is not sufficient! If you should have used such a tool without documenting this, it will be considered as cheating and results in failing of the pre-exam project, which means you may not participate in the exam. • conclusion • list of references Use a numbering system for sections and subsections. Structure your main part as suitable for the topic.
Size	At least 5 pages per team member, but not more than 15 pages for a 2 person group and not more than 20 pages for a 3 person group.
Text structure	• Include diagrams or pictures as necessary and useful, but the text should not consist only or mainly of those. • Write real text in normal sentences (not just powerpoint slides with bullet enumerations). • Write in your own words - it is not acceptable to simply copy sentences or entire paragraphs from other sources, even if you quote where they are from.

Presentation	• Prepare a set of powerpoint slides in addition to the seminar paper • Email me the powerpoint slides in PDF format AFTER your presentation, so I can upload them also into the Moodle. • The presentation structure must follow the paper structure.

end of exceptional option).

A Database for the Management of Weather Forecasts

Project for the class Database Systems II
in the Summer Semester 2024

The following persons have contributed to this project:

< signature person 1>	< signature person 2>
< printed name person 1>	< printed name person 2>
< email person 1>	< email person 2>

1 Data Model for the Weather Forecast Database

1.1 Explanation of the Data and the Application

<Overview: your explanation of the situation you want to store data about; which data is relevant, who will use it for which purposes, what are typical queries. The explanation should be enough to understand all entities and relationships in the ERM. Size: approximately 0.5 - 1 A4 page>

1.2 The Data Model

<your ER or UML model, in sufficiently large print!!>

2 System Requirements

<brief description of the DBMS (which version) you have used under which operating system, which JDBC driver, how did you implement the GUI, and any other necessary software or hardware parameters>

3 Relational Design

3.1 Table Schemas

<list of the created tables with their schemas; include your create table statements>

3.2 Database Tables with Data

<The printout of your table contents.
Print the result of SELECT * FROM tablename for all your tables.
In case you have too many tuples to be printed reasonably, print one page for each table.>

3.3 Normalization

<Brief explanation of the normalization status (1NF, 2NF, 3NF, BCNF) and what decisions were made for this>

3.4 Integrity Constraints

<Explain in words why you have defined which referential integrity constraints.>

4 Use Cases /

4.1 Use Cases

<A description of the functionality of how your database will be used. This includes a description of use cases with diagrams. Use the UML use case notation.>

4.2 Description of the Graphical User Interface

<A short verbal description of how you implemented the GUI.>

5 Transactions / Triggers

5.1 Transactions

<Verbal explanation of the database queries / transactions that belong to the use cases. At least one query should show something involving your integrity constraints. Your project must contain a minimum of four transactions/queries involving joins (five, if your group has three members). Define the transaction boundaries; implement a commit point. Explain if there are any rollback scenarios.
Print the SQL code of each transaction after each verbal explanation as well as a screen shot of the transaction result).>

5.2 Triggers

<Verbally explain the triggers that you have implemented. There should be at least one trigger per team member. Print out the Create Trigger statements you implemented.>

5.3 Stored Procedures

<Verbally explain the procedures that you have implemented. There should be at least one stored procedure per team member. Print out the Stored Procedure statements you implemented.>

5.4 Declaration about used AI Tools

<You have two options:

1. We have used neither ChatGPT, nor any other text generating tool.
or
2. We have used ChatGPT (or some other text generating tool (please provide the name!) for the following sections:
Provide a table in which you list in the leftmost column, which subsections of your list of contents are concerned, and in the righthand column, describe how you used the tool, which steps you undertook to verify the generated texts and which changes you made based on your verification.

If you should have used such a tool without documenting this, it will be considered as cheating and results in failing of the pre-exam project, which means you may not participate in the exam.>

6 List of References

<List of references other than the class notes that you have used>

7 Appendix

7.1 Source Code of the Application and User Interface

<The complete code of your application. Please use inline comments!>

7.2 ???

<any other interesting things you did that you would like to document>