HW1 Softwaretechnik Tim Hamacher, Ayman Ouzaouit

Aufgabe 1) Stakeholders:

1. Students

* directly affected by the system, because they will use it to register to groups
* Interested because they want a fair chance to get their preferred times

1. Lecturers

* They create the groups and are managing the students distribution
* They want a system that takes on their tasks and works more efficient

1. Department of Computer Science

* Provides servers and is responsible
* Wants all students happy and a good group management

1. CEO University

* Changing university infrastructure, responsibility
* Univerity policies and standards

1. Software Developer

* Directly involved in designing, coding and implementing the system
* Want a successfull project so they get paid for doing their job

1. IT-Support

* Responsible for maintaining and troubleshooting
* Want reliability and good performance

Power

b)

Manage closely

Keep informed

Monitor

Keep Satisfied

Interest

Aufgabe 2)

1. Funcitonal Requirements:

* The System should allow Users to register for exercise groups
* The System should distribute students across groups based on their availability and preferences
* The System should notify students of their assigned group
* The system should allow to manually assign students to groups
* The system should allow lecturers to create exercize groups for their courses
* The System should provide mechanism for group registration to single or multiple lectures

1. Quality Requirements:

* Performance: System should be able to handle a large amount of users at the same time and respond quickly
* Security: System should protect user data from unauthorized access and only authorized Users can access the system
* Usability: System should be easy to use and clearly understandable (intuitive) for all users ( students and lecturers)

1. Constraint:

* System must be deployed in wintersemester 2026/27, so testversions should be ready in beginnin of wintersemester 2025/26

1. Project Requirement:

* Overall Budget available for system development is 70.000 Euro

1. Process Requirement:

* System should be developed in Java

Aufgabe 3)

* The System should allow Users to register for exercise groups

Precision: clear and on point

Consistency: consistent with overall goal of system

Verifiability: can be tested if students can successfully register for groups

Validity: Valid, very important

Improvement: add preferences and availability of students

* The system should allow lecturers to create exercize groups for their courses

Precision: clear and on point

Consistency: consistent with overall goal of system

Verifiability: can be tested if lecturers can successfully create groups

Validity: Valid, very important

Improvement: add group size and meeting times

* The System should distribute students across groups based on their availability and preferences

Precision: clear and on point

Consistency: consistent with overall goal of system

Verifiability: can be tested by checking fairness and efficiency

Validity: Valid, very important purpose

Improvement: consider preferences, availability, and conflicts

* The System should notify students of their assigned group

Precision: clear and on point Consistency: consistent with overall goal of system

Verifiability: can be tested by checking if students receive the message

Validity: Valid, very important purpose

Improvement: include group details and meeting times in notification

* The system should allow to manually assign students to groups

Precision: clear and on point Consistency: consistent with overall goal of system

Verifiability: can be tested by checking if administrators can manually assign students to groups

Validity: Valid, if something fails

Improvement: maybe only if there are conflicts and fails

* The System should provide mechanism for group registration to single or multiple lectures

Precision: clear and on point Consistency: consistent with overall goal of system

Verifiability: can be tested by checking if student can register for individual or multiple lectures

Validity: Valid, valuable for students that only attend certain lectures

Improvement: maybe add adjustable group sizes

* Performance: System should be able to handle a large amount of users at the same time and respond quickly

Verifiability: testing responses on different server loads

Improvement: design to scale efficiently

* Security: System should protect user data from unauthorized access and only authorized Users can access the system

Verifiablity: penetration tests

Improvements: add encryption

* Usability: System should be easy to use and clearly understandable (intuitive) for all users ( students and lecturers)

Verifiability: user tests and get feedback

Improvement: add user guide

* System must be deployed in wintersemester 2026/27, so testversions should be ready in beginnin of wintersemester 2025/26

Precision:clear

Consistency: consistent

Verifiablility: track development process and make sure deadline is met

Validity: very important sets the timeline

Improvement: add specific launch date

* Overall Budget available for system development is 70.000 Euro

Precision: clear

Consistency: consistent

Verifiability: track expenses

Improvement: add unforsee costs

* System should be developed in Java

Precision: clear

Consistency: consistent

Verifiability: inspect codes

Improvement: use spring boot

Aufgabe 4)

**Use Case: Register for Exercise Groups**

**Actor:** Student **Preconditions:** Student is enrolled in at least one course. **Postconditions:** Student is assigned to exercise groups (if possible), or notified of conflicts.

**Steps:**

1. **View Available Groups:** Student logs into the EGD system and views available exercise groups for their enrolled courses.
2. **Enter Availability:** Student enters their availability times, indicating when they are not available due to other commitments.
3. **System Assigns Groups:** The system attempts to automatically assign the student to exercise groups based on their availability, preferences, and course requirements (e.g., mandatory lab sessions).
4. **Notify of Success or Conflict:**
   * If the system successfully assigns the student to all desired groups, it notifies the student of the assignments.
   * If the system is unable to assign the student to one or more groups due to conflicts or lack of availability, it notifies the student of the conflicts and provides guidance on how to proceed (e.g., contacting the course coordinator).