HTL LEONDING
NACHHILFEBÖRSE

General: Take care of formatting:
- Typesetting of section numbers is very small. At the end they are even out of ordering: 4 comes after 2
- Separate paragraphs more clearly either by indenting the first line of each paragraph or by adding some whitespace between them.

System Specification

Nachhilfebörse HTL Leonding

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4AHIF
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Content

Initial Situation and Goal

1.1 Initial Situation

Introduce the role of Ms. Keck: maybe students consultant (Bildungsberater): "At the HTL Leonding there is one teacher who is responsible for all extra-educational questions of students, the students consultant. Among her numerous responsibilities she is maintaining the tutoring platform of our school." From now on you can simply refer to the student consultant throughout the rest of this text. No need for personal names, for administrators, etc.

At the HTL Leonding the organization and handling of a tutor exchange platform is under the responsibility of Ms. Keck. Her main task is to collect students who are willing to offer coaching services to other students.

Unfortunately this system has a number of shortcomings:
1. No images on the contact list -> students are sometimes too shy to ask for the chosen tutor in front of the whole class -> contact barrier
2. System is outdated, inefficient and time-consuming for the administrator
3. Displaced and ancient form of publication. Students who need coaching are mostly not aware that there is a tutoring market
4. No quality assurance of the data. The information on the list might be incorrect and everyone can get personal information about the tutors
5. No other information, like availability times, minimum remuneration etc.

Available Software in the market
There are various products in the market, here are three of them:

- **talentify.me**: An austrian-wide tutoring market, with an attractive web-design. One clear disadvantage of this platform is the lengthy sign-up procedure where a student id, a user name, and an extra password has to be provided.
- **lernquadrat.at**: A tutoring market for Austria, Germany and Switzerland, which offers plenty of possiblities of tutoring (single & group tutoring, crash courses) in a lot of convenient locations. One advantage of this website is the easy registration process, but on the other hand the user cannot choose his/her teacher and the design is not appealing.
- **www.betreut.at/nachhilfe**: An austrian-wide tutoring offering website. Clear disadvantages of this website are that the searching criterias are not specialised on tutoring (the user has to enter details of his/her family when he/she wants to sign up) and the website has a few bugs.

1.1.1 Application Domain

pupils or students. You use both in this text. Stick to one.

In order to to collect all pupils, who want to give tutoring lessons, Mrs Keck hands out a list to the class teachers where the pupils can write down their name, subjects, class and E-Mail. This information will be entered in a Microsoft Access Database, where all tutors with their personal data are saved. Afterwards the list appears in the internal area of the Htl Leonding website in the Nachhilfebörse tab. Additionally the list is printed and then hung up in every first-grad-class and in front of the room E33.
When students want to address a possible coach they have to consult the list, find the student in his/her class or contact him/her via email and agree on a price and meeting times.

1.1.2 Glossary

Tutoring: A student helping another younger student in a certain subject

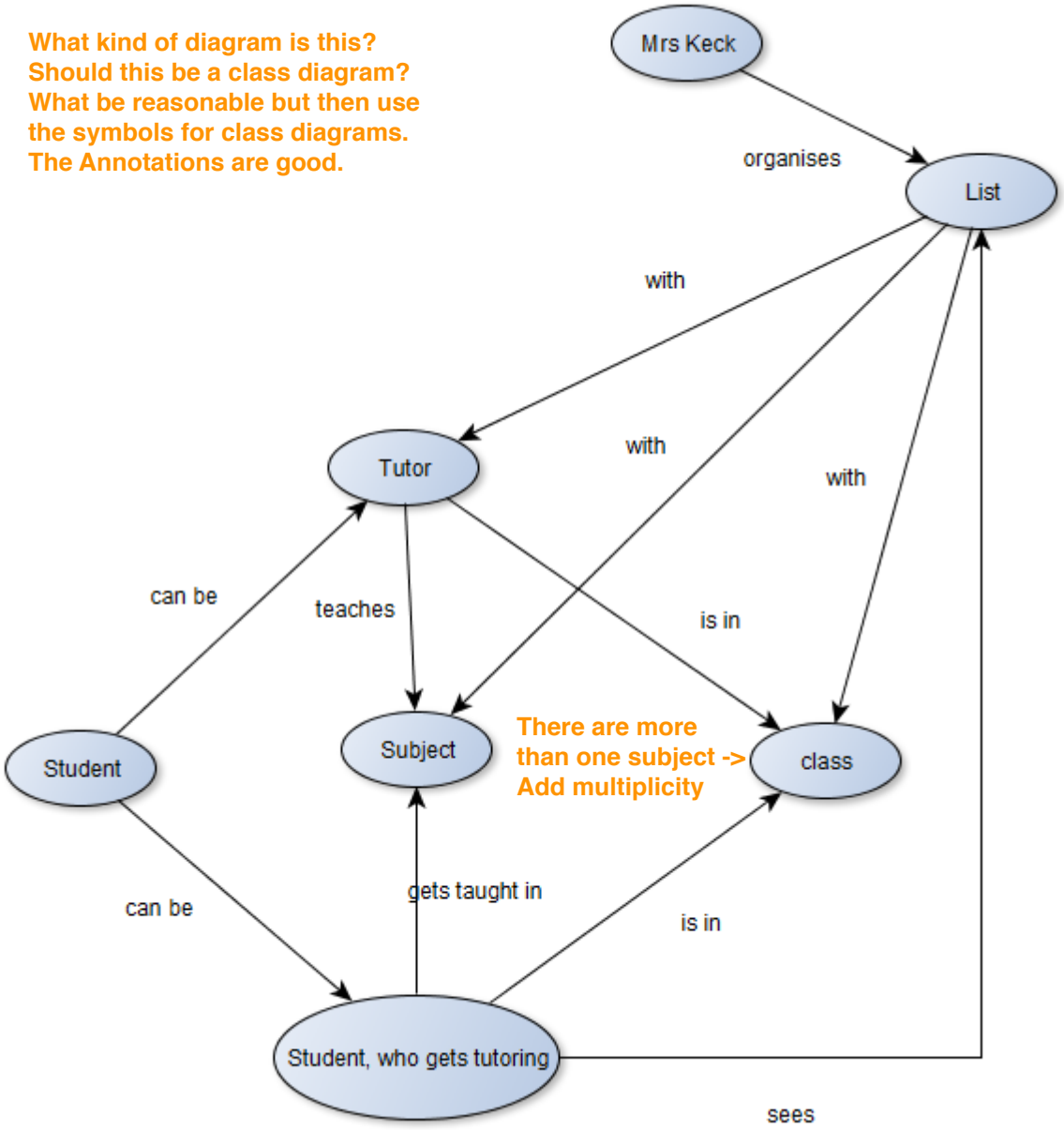
Tutoring market: A place where students, who are searching for tutors, can find an appropriate tutoring teacher

Highlite the terms you explain. There could be more terms?

Be much more specific. There is so much more done: Data is collected by the help of the form teachers, Applications are reviewed,

1.1.3 Model of the Application Domain

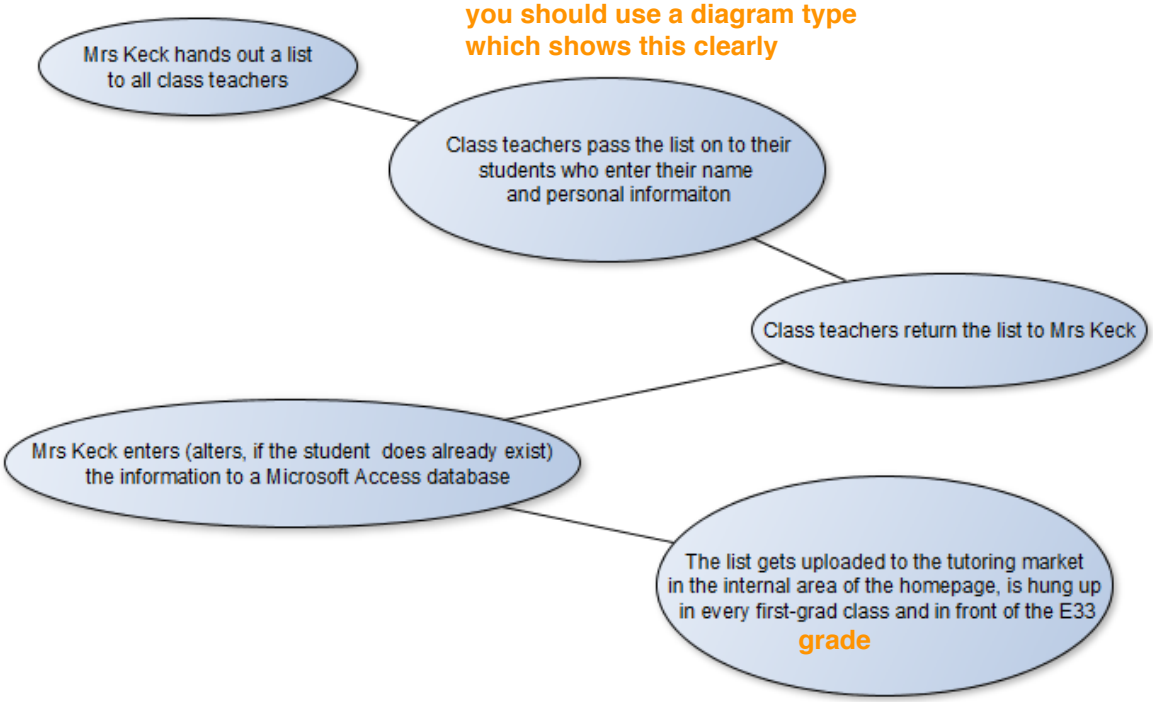
What kind of diagram is this?
Should this be a class diagram?
What be reasonable but then use the symbols for class diagrams.
The Annotations are good.



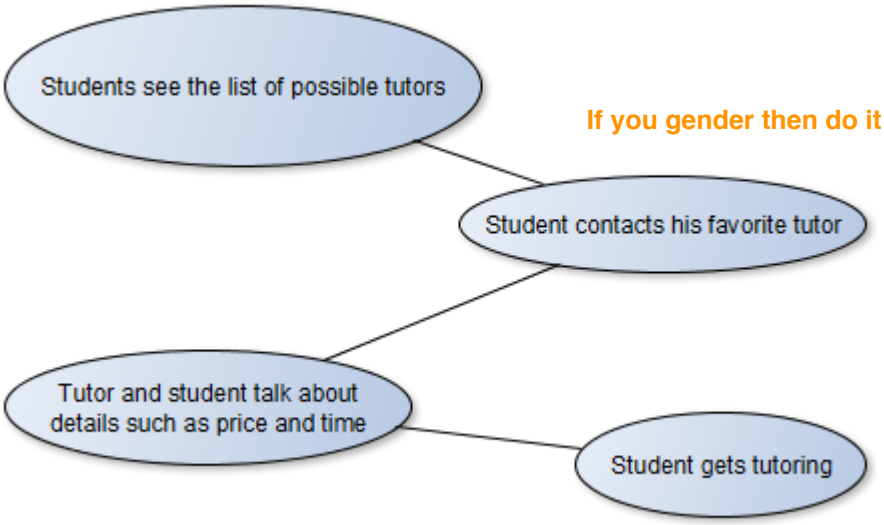
1.1.4 Overview of the Business Processes

Again: what kind of diagram is this? In these processes there is some timely ordering, therefore you should use a diagram type which shows this clearly

- Collect all tutors



- Students find an appropriate tutor



If you gender then do it consequently.

1.1.5 Description of the Business Processes

Collect all tutors

Triggering Event:	Beginning of the school year
Result:	A complete and up-to-date list of tutors
Contributors:	Mrs. Keck, Class teachers, Tutors

Student finds tutor

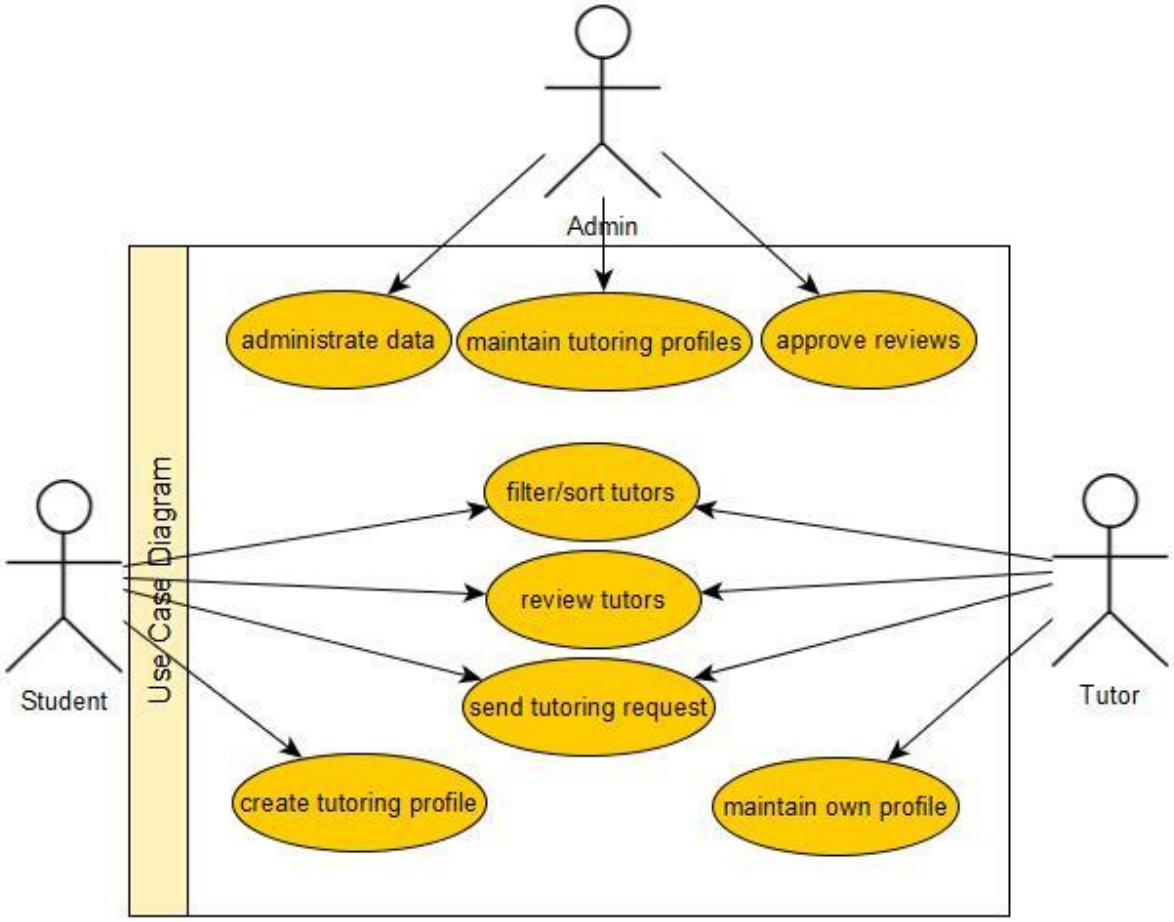
Triggering Event:	Need of a tutor
Result:	A fitting team of a student and a tutor who improve the student's grades
Contributors:	Found tutor, student

1.2 Goal Definition

The main idea of our project is to ease the process for searching for the right tutor and also decrease the work hours for the responsible persons.
If a student wants to use our website he/she first has to login with his/her school account, because the data privacy of our students if very important to our headmaster.
After logging in the student has to decide whether he/she wants to take or give tutoring. If he/she wants to give tutoring he/she has to make a detailed profile with his/her name, a picture of him/her, his/her department, his/her grade, the subjects he/she wants to give tutoring in and more information about himself/herself. If he/she wants to take tutoring lessons he/she can immediately start searching for the right teacher.
On the technical side, the tutors data gets saved in a database. When the user now starts to filter the teachers to find the right one he/she always gets a refreshed list of possible matching tutors. This list can be filtered by department, grade, subject, rating or remuneration and then the list can be sorted by grade, remuneration or rating.
The user also can send the tutor a request via email or SMS. **We discussed more options**
We also want to implement a rating system so every student can rate his tutor. The user can rate the tutor with 1-5 books (5 books is the best) and with a comment, which is required. With this function we want to differ good from bad teachers. Furthermore it helps students to get a more precise impression of the tutoring teacher. Before the ratings will actually appear on the website, the administrator(Mrs Keck) will have a look on the ratings and check if there are no fake or insulting ratings.
Of course our website is going to be responsive so the students can use it on their phones too. **Why "Of course"? Either there is a necessity to do so, then give reasons, otherwise you don't do it**

2 Functional Requirements

2.1 Use Case Diagrams



2.2 Use-Case Details

Administrate data: The admin account maintains the master data for example if the subjects change in a few years.

Maintain tutoring profiles: The administrator is going to be able to edit the tutors profiles (only the subjects can be edited) and also delete whole profiles if it is a fake account or inappropriate or inactive or the student is not anymore at school.

Approve reviews: The administrator can approve or reject reviews. He will be able to delete ratings to pretend insulting or inappropriate ratings .

Filter/Sort tutors: The user can filter the list of teachers by department, grade, subject, gender, rating or remuneration. He also can sort the list by grade, remuneration or rating.

Review tutors: The users can also rate their tutors with 1-5 books (5 books are the best) and a comment, which is required.

Send tutoring request: The user can send a request to the tutor via email or if indicated via sms.

Create tutoring profile: If a student wants to become a tutor he has to create a profile. He has to enter Information about himself like his class, year, name, expected wage, time, teachers, email, age, subjects and a picture.

Maintain own profile: The tutor can edit his own profile if some of his informations have changed. Of course he is also able to delete his profile.

Characteristic Information

Superior business process:	1: Administrate data
Goal:	Master data is up to date
Precondition:	Master has to be changed
Postcondition:	Master data (e.g. available subjects) are up to date
Involved User:	Administrator
Triggering Event:	Available subjects have changed

Superior business process:	2: Maintian tutoring profiles
Goal:	Incorrect or inappropriate information of a tutor must be edited; tutor's profile is deleted
Precondition:	Information (e.g. tutor's subject) of the tutor must be changed (e.g. a teacher told the administrator that the tutor is not good enough to be a tutor) or the tutor left the school
Postcondition:	The information about the tutor is correct
Involved User:	administrator, tutor
Triggering Event:	Tutor's profile is inappropriate, Tutor left the school, recommendation against the tutor

Superior business process:	3: Approve reviews
Goal:	Review is rejected/approved
Precondition:	A user rates a tutor
Postcondition:	Rating is shown on the tutor's profile/Rating is deleted

Involved User:	Administrator, User, Tutor
Triggering Event:	User rates a tutor

Superior business process:	4. Filter/Sort tutors
Goal:	A filtered/sorted list of tutors is displayed
Precondition:	The user wants to search a tutor by a certain criteria or wants to see a sorted list
Postcondition:	A sorted/filtered list of tutors appears
Involved User:	User
Triggering Event:	The user starts searching and wants a filtered/sorted list

Superior business process:	5. Review tutors
Goal:	A rating of a tutor is saved in the database
Precondition:	A user wants to give feedback, so that other pupils can see the ratings of the tutor
Postcondition:	The rating appears on the tutor’s profile
Involved User:	User, admin (has to check the ratings)
Triggering Event:	User rates tutor

Superior business process:	6. Send tutoring request
Goal:	The tutor gets a message, which tells him that a user is interested in tutoring
Precondition:	A user wants to contact a tutor
Postcondition:	Tutor is informed about the user’s interest

Involved User:	Tutor, user
Triggering Event:	A user wants to contact a tutor

Superior business process:	7. Create tutoring profile
Goal:	A tutoring profile is created
Precondition:	A user wants to become a tutor
Postcondition:	The user has her/his own tutoring profile
Involved User:	User
Triggering Event:	The user want to become a tutor

Superior business process:	8. Maintain own proprofilel
Goal:	The data of the tutor is up to date
Precondition:	Information of the tutor has changed
Postcondition:	The information is up to date again
Involved User:	Tutor
Triggering Event:	Personal information has changed

2.2.1 GUI to call the use case

Scenario for the standard use (good case)

Administrate data

Step	User	Activity
1	admin	Choose master data
2	admin	Change master data
3	server	Save new data on server

Maintain tutoring profiles

Step	User	Activity
1	admin	Choose a tutors profile
2	admin	Changes or deletes the profile
3	server	Saves the changed profile on server or deletes the profile from server

Approve reviews

Step	User	Activity
1	admin	Choose a rating
2	admin	Approve/Deletes the rating
3	server	Admin approves the rating => server saves the rating Admin deletes the rating => server deletes the rating from server

Filter/Sort tutors

Step	User	Activity
1	student / tutor	Choose a filter for the list
2	server	Filters the list of tutors
3	server	New filtered list gets displayed
4	student / tutor	Chooses a criteria for sorting the list
5	server	Sorts the list of tutors
6	server	New sorted list gets displayed

Review tutors

Step	User	Activity

1	student / tutor	Choose a tutor
2	student / tutor	Reviews the tutor
3	server	Save the review

Send tutoring request

Step	User	Activity
1	student / tutor	Choose a tutor
2	student / tutor	Sends a request
3	server	Sends the request

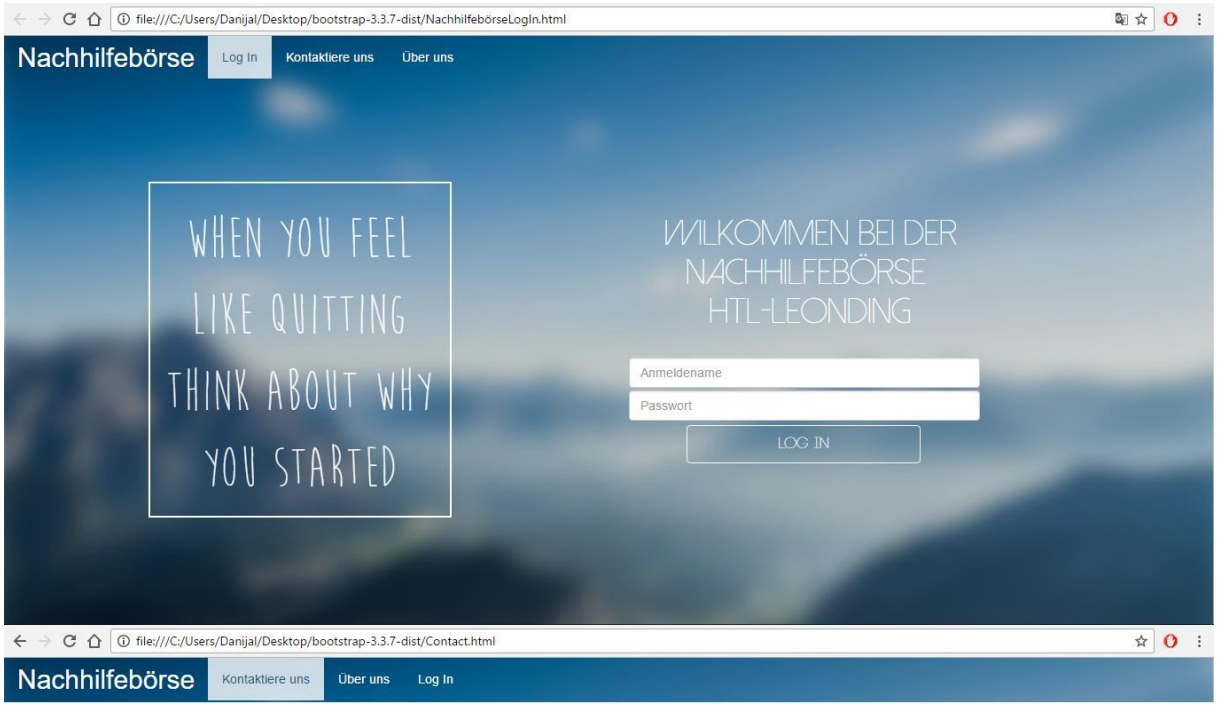
Create tutoring profile

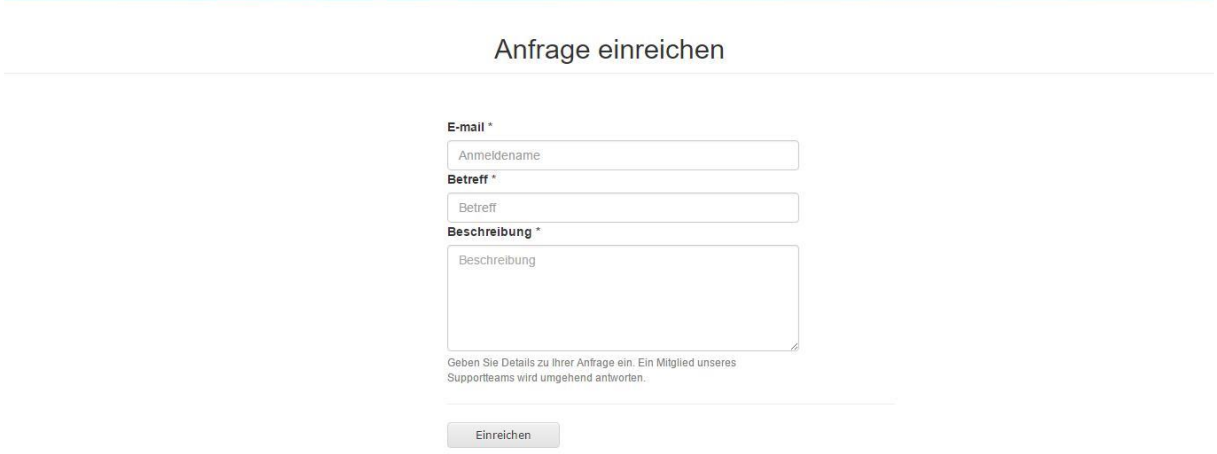
Step	User	Activity
1	student	Fill in information
2	student	Press register button
3	server	Save tutor on server

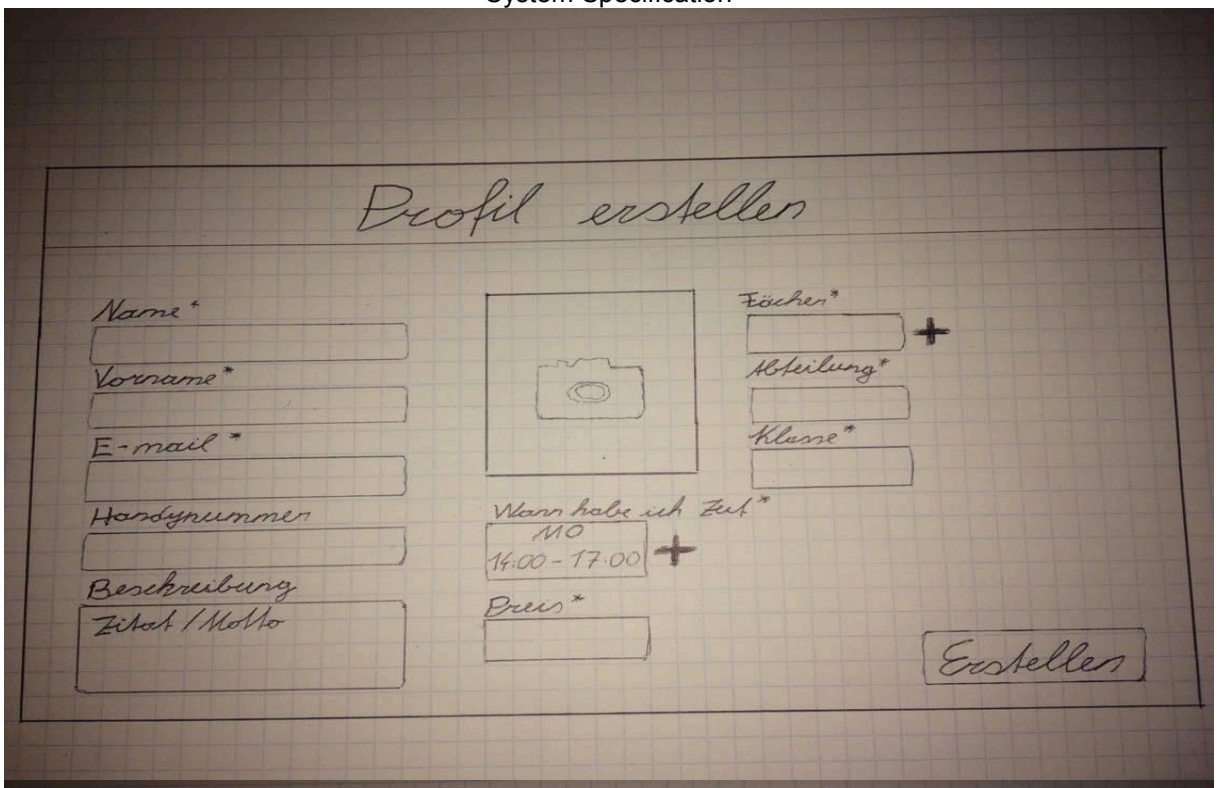
Maintain own profile

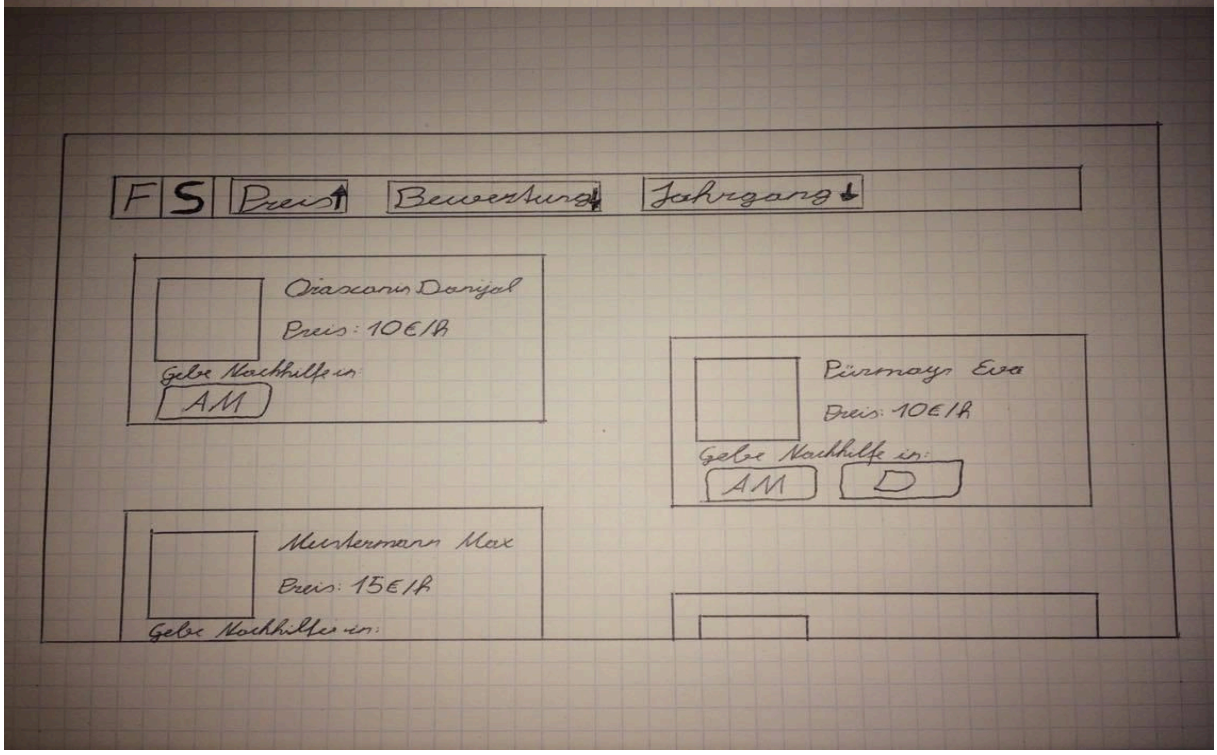
Step	User	Activity
1	tutor	Edit or delete profile
2	server	Saves the changed profile on server or deletes the profile from server

2.2.2 GUIs for the standard use






Profil erstellen
Name*
Vorname*
E-mail*
Handynummer
Beschreibung
Zitat / Motto
Fächer*
Abteilung*
Klasse*
Wann habe ich Zeit*
MO
14:00 - 17:00
Preis*
Erstellen


F
S
Preis
Bewertung
Jahrgang
Orascanin Danijal
Preis: 10€/h
Gebe Nachhilfe in:
AM
Pürmayr Eva
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Meistermann Max
Preis: 15€/h
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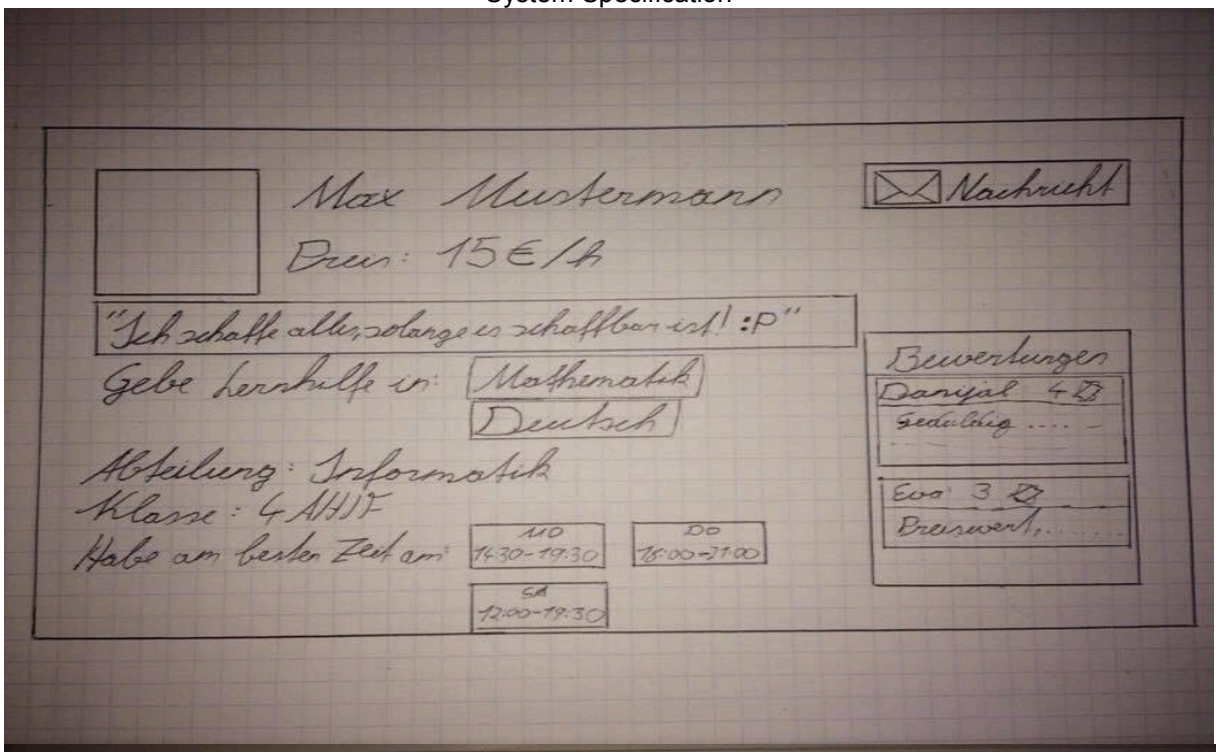
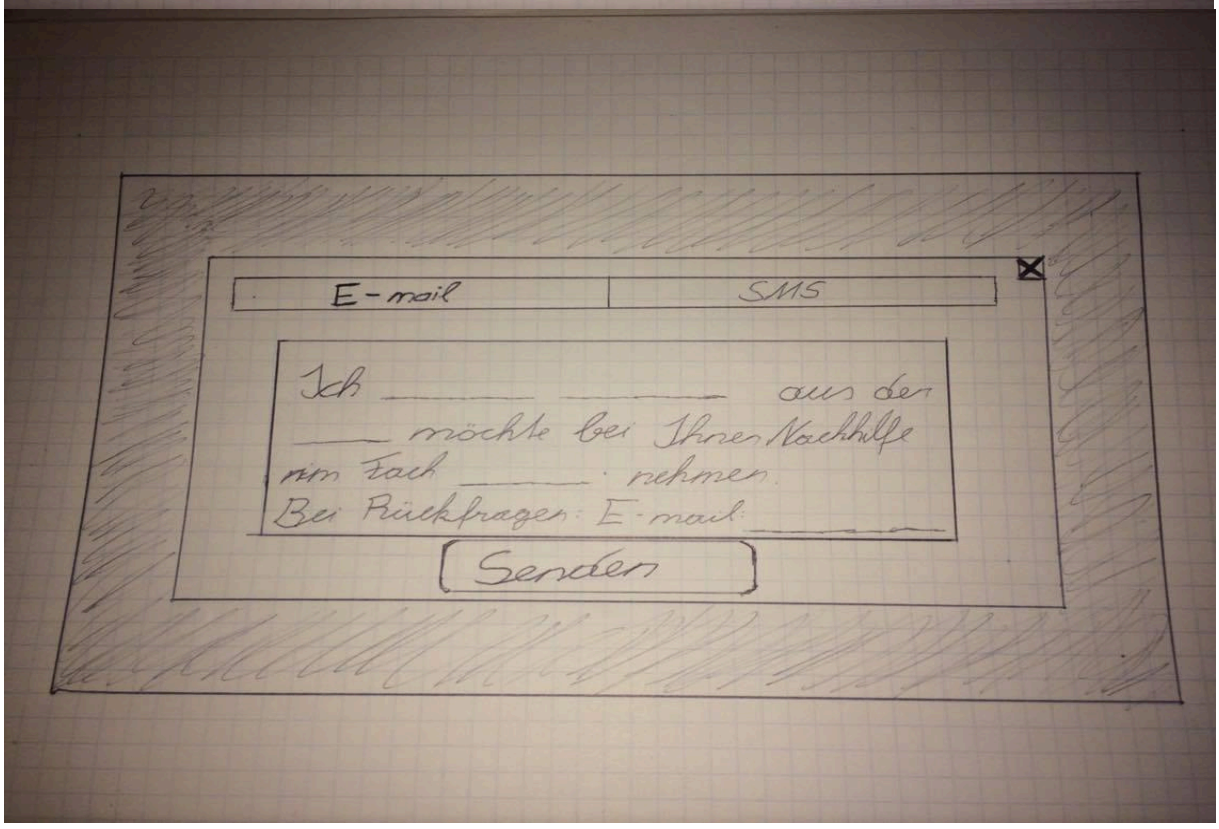

Max Mustermann
Nachricht
Preis: 15€/h
"Ich schaffe alles, solange es schaffbar ist! :P"
Gebe Lernhilfe in:
Mathematik
Deutsch
Abteilung: Informatik
Klasse: 4AHIF
Habe am besten Zeit am:
MO
14:30-19:30
DO
15:00-21:00
SA
12:00-19:30
Bewertungen
Danijal 4
Geduldig ....
Eva 3
Preiswert ....


E-mail
SMS
Ich _____ _____ aus der
___ möchte bei Ihnen Nachhilfe
im Fach _____ nehmen.
Bei Rückfragen: E-mail: _____
Senden

2.2.3 Scenarios for non-standard uses (bad cases or work around cases)

Administrate data

Step	User	Activity
1	admin	Choose master data
2	admin	Change master data
3	server	● Connection to server failed => the data will not be changed ● Required fields are not filled => “Bitte füllen Sie die notwendigen Felder ein” ● Timeout: Changes will not saved

Maintain tutoring profiles

Step	User	Activity
1	admin	Choose a tutors profile
2	admin	Changes or deletes the profile
3	server	● Connection to server failed => the changes will not be saved ● List of subjects is empty => “Bitte füllen Sie die notwendigen Felder ein” ● Timeout: Changes will not be saved

Approve reviews

Step	User	Activity
1	admin	Choose a rating
2	admin	Approves/Deletes the rating
3	server	● Connection to server failed => admin must approve/remove the rating again

Filter/Sort tutors

Step	User	Activity
1	student / tutor	Choose a filter for the list

2	server	Filters the list of tutors
3	server	● Connection failed => List will be displayed without the filter ● No tutors in the filtered list => “Leider entspricht kein Nachhilfelehrer den vorgegebenen Kriterien” ● “Filter” button is pressed but no criteria is selected => “Sie haben kein Filterkriterium eingegeben”
4	student / tutor	Chooses a criteria for sorting the list
5	server	Sorts the list of tutors
6	server	● Connection failed => List will be displayed, but unsorted

Review tutors

Step	User	Activity
1	student / tutor	Choose a tutor
2	student / tutor	Reviews the tutor
3	server	● Connection failed => The review will not be saved Timeout: Changes will not be saved ● “Bewerten”-Button is pressed but amount of ‘books’ is not selected => “Bitte bewerten Sie den Nachhilfelehrer, indem Sie 1-5 Bücher vergeben” ● “Bewerten”-Button is pressed but comment field is empty => “Bitte füllen Sie das Kommentarfeld aus”

Send tutoring request

Step	User	Activity
1	student / tutor	Choose a tutor
2	student / tutor	Sends a request
3	server	● Connection failed => Request will not be sent ● Tutor did not enter his mobile phone number => Request

		can only be sent as an email ● Student deleted the suggested text and the text box is empty => “Bitte geben Sie Ihre Nachricht ein. <Link>Mustertext wiederherstellen<Link> ● Student did not enter his name/class/email/phone number => “Bitten füllen Sie die notwendigen Felder ein”

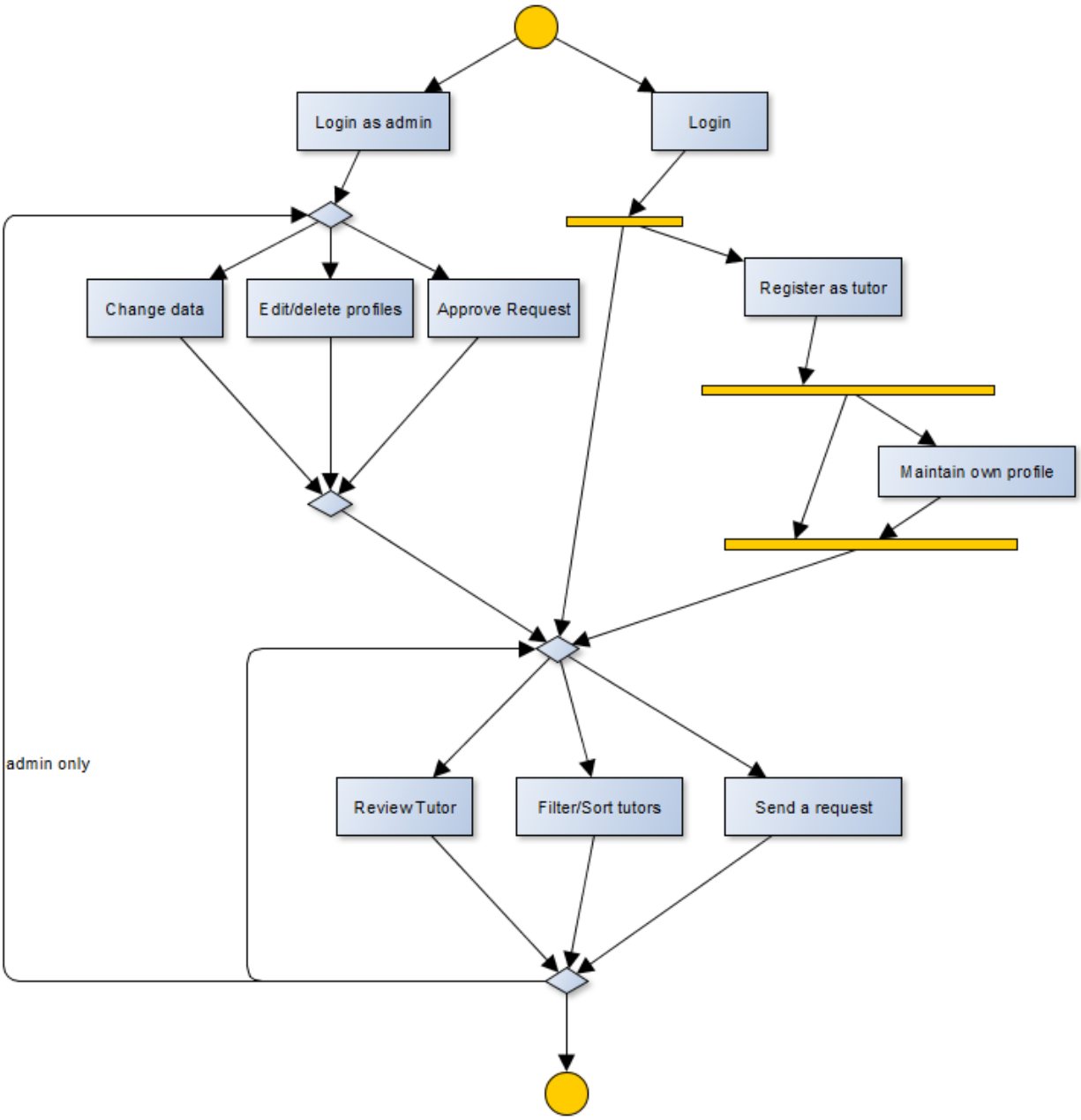
Create tutoring profile

Step	User	Activity
1	student	Fill in information
2	student	Press register button
3	server	● Connection failed => Tutoring profile will not be created ● Timeout =>Changes will not be saved ● Missing information => “Bitte füllen Sie die notwendigen Felder ein”

Maintain own profile

Step	User	Activity
1	tutor	Edit or delete profile
2	server	● Connection failed / information is not valid => changes will not be saved ● Timeout => Changes will not be saved ● Empty fields => “Bitte füllen Sie die notwendigen Felder aus”

2.2.4 Workflow



2.2.5 Open Points

- Report user: If a tutoring account seems to be created for fun (for example:an unserious picture or an inappropriate description of a tutor), then there should be a possibility for other users to report this tutor.

3 Non-functional Requirements

ID:	NFR_001
Name:	Modern Design
Type:	USE
Description:	For reaching a high number of users, the design of the application must be modern
Assigned use cases:	filter/sort tutors, create tutoring profile

ID:	NFR_002
Name:	Data security
Type:	SEC
Description:	The system must not let anyone but the students to see private data of the tutors
Assigned use cases:	filter/sort tutors, create tutoring profile

ID:	NFR_003
Name:	correct Data
Type:	SEC
Description:	The tutor's db ata eg. phone number, name must be correct so that they can be contacted by interested students.
Assigned use cases:	send tutoring request

ID:	NFR_004
Name:	Waiting time
Type:	EFFIC
Description:	The system must respond after three seconds.
Assigned use cases:	filter/sort tutors

ID:	NFR_005
Name:	Changeable Data
Type:	MAINT
Description:	Data (for example available subjects)

	must be changeable without editing the code.
Assigned use cases:	administrate data

Types of non-functional requirements

Type	Name	Description
USE	Usability requirement	This requirement is to make the target group as described in section 1 is liking to work with that system.
EFFIC	Efficiency requirement	Run-time and memory efficiency. What are the constraints under which the system has to run.
MAINT	Maintenance and portability requirement	Which maintenance or porting effort is expected in the future? Internationalization expected? Porting to different hardware platform?...
SEC	Security requirement	Security requirements comprise confidentiality, data integrity, and availability. How much do we have to consider that data is not accessible to unauthorized persons? Is the correctness and/or consistency of data to be guaranteed? How severe are total system faults?
LEGAL	Legal requirement	Are there any standards or legal constraints to be considered?

Typen von Produktcharakteristiken

Typ USE: Benutzbarkeitsanforderung

Die in Abschnitt 1 beschriebene Zielgruppe liegt diesen Anforderungen zugrunde. Wie muß die Software beschaffen sein, damit diese Zielgruppe gerne damit arbeitet?
Beispiel: Die Software soll flexibel für unterschiedliche Arbeitsweisen einsetzbar sein.
ODER
Die Software soll dem Erscheinungsbild anderer Produkte des Herstellers entsprechen.

Typ EFFIC: Effizienzanforderung

Hier geht es sowohl um Laufzeit- als auch um Speichereffizienz. Was wird unter dem sparsamen Einsatz dieser Ressourcen verstanden?
Beispiel: Die Berechnung darf nicht länger als 0,25 Sekunden dauern.

Typ MAINT: Wartbarkeits- und Portierbarkeitsanforderung

Welcher Grad an Änderbarkeit wird gefordert? Hier werden, soweit wie möglich, kommende Anpassungen und Erweiterungen vorhergesehen.

Beispiel: Das Produkt soll später auch in englischer Sprache verfügbar sein.

Typ SEC: Sicherheitsanforderung

Zu den Sicherheitsanforderungen gehören die Aspekte Vertraulichkeit, Datenintegrität und Verfügbarkeit. Wie sehr müssen die Daten vor dem Zugriff durch Dritte geschützt werden? Ist es entscheidend, die Korrektheit der erfassten Daten und ihre Konsistenz zu gewährleisten? Dürfen Systemausfälle vorkommen?
Beispiel: Das System muss gewährleisten, dass Daten nie verändert werden können.

Typ LEGAL: Gesetzliche Anforderung
Welche Standards und Gesetze müssen beachtet werden?
Beispiel: Das Produkt muss die ISO 9000 Norm erfüllen.

4 Quantity Structure

The expected number of tutors is about 100 tutors (4 departments * 2nd-5th grade = 4 grades * 2 classes on average * 3 tutors in a class) .Per tutor an image, the name, class, department, prefered times and remuneration, subjects, given ratings and additional information must be saved. This indicates the use of a database.

2 System Architecture and Interfaces

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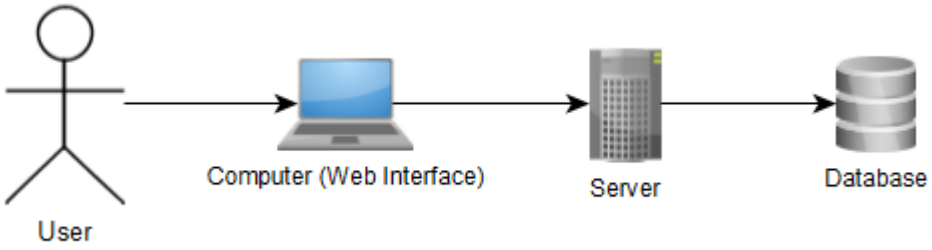

The tutoring market will be available online, via a web interface. We will also use a server and a database, but due to the missing information about the final implementation in the school system, we do not have further details about that.

3 Acceptance Criteria

Login

Test Step	Expected Behaviour	Test fails if
Login attempt with correct username or password	User is logged in	Username or password is incorrect
Login attempt with incorrect username or password	Error message	Username and password are correct

Sort/filter tutors

Test Step	Expected Behaviour	Test fails if
Choose a sort category & press “Search”	Sorted list appears	No tutor is registered
Choose filter categories & press “Search”	Filtered list appears	No tutor with those filter categories can be found
Press “Search” without any filter categories	Standard list appears	-

Show tutor’s profile

Test Step	Expected Behaviour	Test fails if
Pick a tutor and click on it	User gets linked to a page, where the selected tutor is shown	-

Create tutoring profile

Test Step	Expected Behaviour	Test fails if
User clicks on the button	A page appears, where the	-

“Become a tutor”	user can enter his personal data	
User fills in the required data and presses the “Save” button	User becomes a tutor and his registration is successful	Information is missing

Maintain tutoring profile

Test Step	Expected Behaviour	Test fails if
Tutor clicks on the button “My profile”	A page appears, where the user can edit her/his personal data	-
User edits information clicks on the “Save” button	Changes were successful	Information is missing or incorrect
User clicks on the “Delete my profile”	Profile gets deleted and user gets linked to the start page	-

Review tutors

Test Step	Expected Behaviour	Test fails if
User enters the number of books, adds a comment and clicks on the button “Rate”	The rating is added to the list, which must be approved by the administrator	Rating criterias are not filled in or comment field is empty

Send tutoring request

Test Step	Expected Behaviour	Test fails if
User clicks on the “Contact” button and then on the “Email” button	Tutor gets an automatic email, which informs her/him about the requesting user	User has already sent a contact request
User clicks on the	Tutor gets an automatic	User has already sent a

“Contact” button and then on the “SMS” button	sms, which informs her/him about the requesting user	contact request

Approove reviews

Test Step	Expected Behaviour	Test fails if
Administrator goes to the administrator section and clicks on the button “Pending ratings”	Pending ratings are shown	There are no pending ratings
Administrator reads the ratings and clicks “Approve”	On the tutors page, the rating is listed	-
Administrator reads the ratings and clicks “Decline”	The ratings is deleted	-

Adminsitrate data

Test Step	Expected Behaviour	Test fails if
Administrator goes to the administrator section and clicks on the button “Edit permanent information”	Permanent data isshown	-
Administrator selects data which should be changed and clicks “Change”	The permanent data is changed	Data which must be filled in is missing