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Vorschlag für Vordiplomarbeit

# Persönliche Angaben

|  |  |  |
| --- | --- | --- |
| **Teammitglied** | **1** | **2** |
| **Klasse** | 14i | 14i |
| **Name** | Sax | Ochsner |
| **Vorname** | Christian | Fabian |
| **Adresse privat** | Dorfstrasse 11  CH – 9545 Wängi | Büelhof 22  CH – 8852 Altendorf |
| **Telefon privat** | 052 378 1025 | 055 535 5098 |
| **Natel privat** | 079 800 7766 | 079 246 4028 |
| **Email privat** | [christian@sax-news.com](mailto:christian@sax-news.com) | [f.ochsn3r@gmail.com](mailto:f.ochsn3r@gmail.com) |
| **Arbeitgeber** | NTT Data AG Switzerland | Otto Ackermann AG |
| **Telefon geschäft** | 058 433 13 77 | 055 451 0811 |
| **Natel geschäft** |  |  |
| **Email geschäft** | Christian.sax@nttdata.com | info@ackermann-o.ch |

# Titel der Arbeit

MoCab (Mobile Collaboration tool)

# Herausforderungen der Arbeit

* Da es sich um einen Teameffort handelt, ist die Synchronisation, Abstimmung und das definieren der Schnittstellen ein signifikanter Faktor
* Die Client Server Architektur birgt ebenfalls eine gewisse Herausforderung, da Kommunikation zwischen mehreren Endpunkten sauber abgeglichen werden muss
* Das korrekte (Ab-) Schätzen der Aufwände

# Konkrete Aufgabenstellung

## Ausgangslage

Die herkömmliche Organisation eines Anlasses gestaltet sich aufwendig und erfordert ein hohes Mass an Kommunikation und Organisation von Mitwirkenden und Infrastruktur.

Durch Software liesse sich der Aufwand senken und im Falle einer mobilen Anwendung (web basiert) flexibler gestalten. So können beteiligte in einem Gruppenchat verlinkt und die Aufgaben verteilt werden. Zusätzlich lassen sich die Aufwände, welche durch eine bestimmte Aufgabe entstehen erfassen und dem Projekt zuweisen.

Die Organisation und Planung eines Anlasses wird dadurch merklich vereinfacht und erleichtert. Leider finden sich aktuell nur bedingt Softwarelösungen, welche den entsprechenden Umfang aufweisen und dennoch einfach zu handhaben sind.

Die Anwendung soll mobile Kommunikation via web Applikation bieten und dabei einfach zu bedienen sein.

Auf das wiederverwenden bestehenden Chat API’s wird bewusst verzichtet, um die Hoheit über dieses, sehr zentrale, Module zu haben und, in Bezug auf Designfragen, frei zu bleiben.

Projekte können aufgesetzt und diesen anschliessend Aufgaben zugewiesen werden, welche wiederum den Projektmitgliedern verteilt werden können. Die Aufgaben können ein Budget aufweisen, welches mit den effektivkosten ergänzt werden kann.

Umfragen können ebenfalls erfasst und den Projektmitgliedern publiziert werden. Die Benutzer geben Ihre Stimme für eine der definierten Optionen ab.

Somit ist die Web Applikation der Zentrale Angelpunkt was Projektierung etc. anbelangt.

## Anforderungen

Aufgund der Ausgangslage soll eine Webapplikation entwickelt werden, welche folgende Funktionen abbildet.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Feature** | **Phase** | **Description** | **Component** | **Subsystem** | **Must** | **Duration** | **Owner** |  | **Must Efforts** | **CBS** | **FO** |  |
| View current "Project" "Balance" | 1 | The project balance is visible to every user within the project, during the entire lifetime of it | Frontend | Balance | yes | 6 | FO |  | 6 | 0 | 6 |  |
| Compare balance | 1 | The "Balance" adds all expenses of every individual in a project and compares them | Frontend | Balance | yes | 6 | FO |  | 6 | 0 | 6 |  |
| Attached balance to task | 1 | Assign a balance to a task and attahced a receipt for it | Frontend | Balance | yes | 7 | FO |  | 7 | 0 | 7 |  |
| Add a balance | 1 | A user can create a balance object holding effective costs, predicted costs, date and currency | Frontend | Balance | yes | 5 | FO |  | 5 | 0 | 5 |  |
| Attache an image to a balance | 1 | A user can attach an image or photo taken to a balance | Frontend | Balance | yes | 4 | FO |  | 4 | 0 | 4 |  |
| Develop Balance Module | 2 | Develop Balance subsystem and ist testcases (including UI) | Frontend | Balance | yes | 6 | FO |  | 6 | 0 | 6 |  |
| Test balance module | 3 | Complete function test including fixing | Frontend | Balance | yes | 3 | FO |  | 3 | 0 | 3 |  |
| Document Balance subsystem | 4 | Document the balance subsystem, including class diagram, Message Diagram and use cases | Frontend | Balance | yes | 5 | FO |  | 5 | 0 | 5 |  |
| Send group Message | 1 | Users can send group messages to inidividuals which were selected from the global directory. The message has a sent, processed, received and read indicator that is displayed to the user, next to the message sent | Frontend | Chat | yes | 6 | FO |  | 6 | 0 | 6 |  |
| Send private Message | 1 | A user can send messages of unlimitted length to one single individual, which he selects from the global directory | Frontend | Chat | yes | 4 | FO |  | 4 | 0 | 4 |  |
| Open advanced "Project" "Chat" | 1 | Project members can initiate individual chats among them | Frontend | Chat | no | 4 | FO |  | 0 | 0 | 0 |  |
| Send emoticon | 1 | A user can send emoticons in char messages | Frontend | Chat | no | 4 | FO |  | 0 | 0 | 0 |  |
| Attached images to a chat | 1 | A user can attach images or pictures taken to a chat message, which will be displayed | Frontend | Chat | no | 4 | FO |  | 0 | 0 | 0 |  |
| Open "Project" "Chat" | 1 | Every user can use a chat with all individuals from a project (default is group chat) | Frontend | Chat | yes | 2 | FO |  | 2 | 0 | 2 |  |
| Send project chat messages | 1 | A user can send messages to everyone in a project | Frontend | Chat | yes | 4 | FO |  | 4 | 0 | 4 |  |
| Receive Message | 1 | A user receives all messages from the individuals in a project | Frontend | Chat | yes | 2 | FO |  | 2 | 0 | 2 |  |
| Forward messages | 1 | A user can forward messages into any other chat | Frontend | Chat | yes | 3 | FO |  | 3 | 0 | 3 |  |
| Develop Chat Module | 2 | Develop chat subsystem and ist testcases (including UI) | Frontend | Chat | yes | 8 | FO |  | 8 | 0 | 8 |  |
| Test Chat module | 3 | Complete function test including fixing | Frontend | Chat | yes | 4 | FO |  | 4 | 0 | 4 |  |
| Document Chat subsystem | 4 | Document the balance subsystem, including class diagram, Message Diagram and use cases | Frontend | Chat | yes | 5 | FO |  | 5 | 0 | 5 |  |
| Design Webservice to interact with Backend | 1 | The frontend communicates using a designed webservice to push and pull data | Backend | Communication | yes | 8 | CBS |  | 8 | 8 | 0 |  |
| Design backend interface | 1 | Design the interface on how the frontend communicates with the backend | Interface | Communication | yes | 7 | CBS |  | 7 | 7 | 0 |  |
| Develop Webservice | 2 | Develop the backen webservice and its testcases | Backend | Communication | yes | 10 | CBS |  | 10 | 10 | 0 |  |
| Implement Webservice client | 2 | The frontend implementation of consuming the webservice an providing the modules with data | Frontend | Communication | yes | 9 | CBS |  | 9 | 9 | 0 |  |
| Testing Webservice | 3 | Complete function test including fixing | Backend | Communication | yes | 6 | CBS |  | 6 | 6 | 0 |  |
| Document Webservice | 4 | Document the Communication subsystem, including class diagram, Message Diagram and use cases | Documentation | Communication | yes | 6 | CBS |  | 6 | 6 | 0 |  |
| Design Trace Messaging component | 1 | The system can log trace messages, which containt text, date time, severity and trace level for analysis purposes. The output will be a text file |  | Logging | yes | 6 | FO |  | 6 | 0 | 6 |  |
| Develop Trace Messaging component | 2 | Develop Logging subsystem and ist testcases including interface |  | Logging | yes | 6 | FO |  | 6 | 0 | 6 |  |
| Test logging component | 3 | Complete function test including fixing |  | Logging |  |  |  |  | 0 | 0 | 0 |  |
| Document Trace component | 4 | Document the logging subsystem, including class diagram, Message Diagram and use cases |  | Logging | yes | 6 | FO |  | 6 | 0 | 6 |  |
| Design "Project" model | 1 | Design the database model to store and retrive a project balance | Backend | Persistance Layer | yes | 6 | CBS |  | 6 | 6 | 0 |  |
| Design "Balance" model | 1 | Design the database model to store and retrive balances | Backend | Persistance Layer | no | 6 | CBS |  | 0 | 0 | 0 |  |
| Design "Message" model | 1 | Design the database model to store and retrive a chat message | Backend | Persistance Layer | yes | 6 | CBS |  | 6 | 6 | 0 |  |
| Design "Poll" model | 1 | Design the database model to store and retrive polls including the votes | Backend | Persistance Layer | yes | 6 | CBS |  | 6 | 6 | 0 |  |
| Design "Project" model | 1 | Design the database model to store and retrive a project | Backend | Persistance Layer | yes | 6 | CBS |  | 6 | 6 | 0 |  |
| Design "Task" model | 1 | Design the database model to store and retrive a task | Backend | Persistance Layer | yes | 6 | CBS |  | 6 | 6 | 0 |  |
| Design Global Directory | 1 | Design the global directory data structure | Backend | Persistance Layer | yes | 6 | CBS |  | 6 | 6 | 0 |  |
| Develop Global Directory | 2 | Develop Global directory and its testcases (including UI) | Frontend | Persistance Layer | yes | 6 | CBS |  | 6 | 6 | 0 |  |
| Testing directory | 3 | Complete function test including fixing | Backend | Persistance Layer | yes | 6 | CBS |  | 6 | 6 | 0 |  |
| Document data model | 4 | Document data model and data dictionary | Documentation | Persistance Layer | yes | 8 | CBS |  | 8 | 8 | 0 |  |
| Document directory subsystem | 4 | Document the Directory subsystem, including class diagram, Message Diagram and use cases | Documentation | Persistance Layer | yes | 6 | CBS |  | 6 | 6 | 0 |  |
| Add poll Options | 1 | The owner of the poll can allow users to add their inidividual option, which is then available to all other users | Frontend | Poll | no | 3 | CBS |  | 0 | 0 | 0 |  |
| Create a Poll | 1 | A user can create polls to vote between options. The options are defined when creating a poll. | Frontend | Poll | no | 6 | CBS |  | 0 | 0 | 0 |  |
| Send Poll closed stats | 1 | Once every invited person has voted or the poll expired (datetime set when creating the poll => optional) the results are sent to either all users or the owner only, based on the settings made during opening of the poll | Frontend | Poll | no | 3 | CBS |  | 0 | 0 | 0 |  |
| Set Poll expiry date time | 1 | The user can set an expiry for the poll at any time, as long as the poll is active. He will be notified when it expires, including the details | Frontend | Poll | no | 4 | CBS |  | 0 | 0 | 0 |  |
| Vote on polls | 1 | The user creating the poll can select a list of users from the directory which are eligeable to vote for one of the specified options | Frontend | Poll | no | 3 | CBS |  | 0 | 0 | 0 |  |
| Develop Poll Subsystem | 2 | Develop Poll Subsystem and its testcases (including UI) | Frontend | Poll | yes | 7 | CBS |  | 7 | 7 | 0 |  |
| Testing Polls | 3 | Complete function test including fixing | Frontend | Poll | yes | 6 | CBS |  | 6 | 6 | 0 |  |
| Document Poll subsystem | 4 | Document the poll subsystem, including class diagram, Message Diagram and use cases | Documentation | Poll | yes | 6 | CBS |  | 6 | 6 | 0 |  |
| Create Advanced "Project" | 1 | Additionally a user can add Balance to a project | Frontend | Project | no | 1 | FO |  | 0 | 0 | 0 |  |
| Get project balance notification | 1 | Users are being notified of effective costs involved with this project once it is closed | Frontend | Project | no | 4 | FO |  | 0 | 0 | 0 |  |
| Create "Project" | 1 | A user can create a project which contains "Task", "Poll", "Chat" | Frontend | Project | yes | 3 | FO |  | 3 | 0 | 3 |  |
| Invite user to "Project" | 1 | A user can invite individuals which were selected from the global directory. | Frontend | Project | yes | 2 | FO |  | 2 | 0 | 2 |  |
| Kick user from "Project" | 1 | The owner of a project can kick individuals from it | Frontend | Project | yes | 1 | FO |  | 1 | 0 | 1 |  |
| Close "Project" | 1 | The owner of a project can close it when finished | Frontend | Project | yes | 1 | FO |  | 1 | 0 | 1 |  |
| Develop Project Module | 2 | Develop project subsystem and ist testcases (including UI) | Frontend | Project | yes | 5 | FO |  | 5 | 0 | 5 |  |
| Test Project module | 3 | Complete function test including fixing | Frontend | Project | yes | 3 | FO |  | 3 | 0 | 3 |  |
| Document Project subsystem | 4 | Document the balance subsystem, including class diagram, Message Diagram and use cases | Frontend | Project | yes | 5 | FO |  | 5 | 0 | 5 |  |
| Design Reporting Model | 1 | Develop/design the reporting model, which allows you to report your projects, their effective balance, tasks, polls and chats involved along with some averages | Frontend | Reporting | no | 12 | CBS |  | 0 | 0 | 0 |  |
| Develop Reporting model | 2 | Develop reporting subsystem and ist testcases (including UI) | Frontend | Reporting | no | 6 | CBS |  | 0 | 0 | 0 |  |
| Testing Reporting | 3 | Complete function test including fixing | Frontend | Reporting | no | 6 | CBS |  | 0 | 0 | 0 |  |
| Data and communication encryption | 1 | The data stored as well as realtime communication is being encrypted | Frontend | Security | no | 6 | CBS |  | 0 | 0 | 0 |  |
| Assign task to user | 1 | The task owner can assign the task to another user within the project or chat group | Frontend | Task | yes | 3 | CBS |  | 3 | 3 | 0 |  |
| Automated Task assignment | 1 | The system automatically assigns the task to a user for the given group, trying to build an equal load | Frontend | Task | no | 4 | CBS |  | 0 | 0 | 0 |  |
| Create new Task | 1 | A user can create a task, containing a Title, detailed description, duration, due and start datetime. The task can furthermore contain a estimate spenditure allowance | Frontend | Task | yes | 6 | CBS |  | 6 | 6 | 0 |  |
| Skillbased task assignment | 1 | Tasks can be assigned based on skills a user within the group has to have | Frontend | Task | no | 5 | CBS |  | 0 | 0 | 0 |  |
| Task closure notification | 1 | A notification is sent to either the group or creator when the task is completed | Frontend | Task | no | 3 | CBS |  | 0 | 0 | 0 |  |
| Develop Task Subsystem | 2 | Develop task subsystem and its testcases (including UI) | Frontend | Task | yes | 6 | CBS |  | 6 | 6 | 0 |  |
| Testing Tasks | 3 | Complete function test including fixing | Frontend | Task | yes | 6 | CBS |  | 6 | 6 | 0 |  |
| Document Task Subsystem | 4 | Document the task subsystem, including class diagram, Message Diagram and use cases | Documentation | Task | yes | 6 | CBS |  | 6 | 6 | 0 |  |
| Design of frontend GUI | 1 | Design of the overall frontend look and feel including positioning of pannels | Frontend |  | yes | 18 | FO |  | 18 | 0 | 18 |  |
| Floating panels | 1 | The user can rearrange panel as desired | Frontend |  | yes | 16 | FO |  | 16 | 0 | 16 |  |
|  |  |  |  |  |  |  |  |  | 306 | 154 | 152 |  |

## Rahmenbedingungen

Die Web App wird für Chrome und IE designed und ist in JSF geschrieben. Ein zentral erreichbarer Server, welcher die Web App hosted wird vorausgesetzt.

Des Weiteren wird eine Datenbank in Hintergrund benötigt, welche für Persistenz Zwecke verwendet wird. Die Kommunikation zwischen Server und Client darf Port technisch nicht eingeschränkt sein.

## Motivation für die Arbeit

Mit der Arbeit die Vordiplomprüfung der HFU gut und erfolgreich abzuschliessen. Einfach Handhabung der Applikation und sammeln von Erfahrungen beim Entwickeln von mobilen Anwendungen.

# Aufwandschätzung

|  |  |  |
| --- | --- | --- |
| **Module** | **Must Duration** | **Optional** |
| Balance | 42 | 42 |
| Chat | 38 | 50 |
| Communication | 46 | 46 |
| Logging | 18 | 18 |
| Persistance Layer | 62 | 68 |
| Poll | 28 | 38 |
| Project | 20 | 25 |
| Reporting | 0 | 24 |
| Security | 0 | 6 |
| Task | 27 | 39 |
| Misc | 34 | 34 |
| **Total** | **315** | **390** |

# Eingesetzte Mittel

Software wird in Java, mittels Netbeans entwickelt und läuft in der Java Virtual Machine 8.x.

MS Project für die Projektplanung.

Internet Explorer 11 or higher / Chrome

MS SQL 2014 Für Backend / MySQL

WebServer (Microsoft IIS / Tomcat)

Internet (Kommunikationschannel)

# Vorschlag Betreuung

|  |  |
| --- | --- |
| **Name** | Hager |
| **Vorname** | Martin |
| **Adresse privat** |  |
| **Telefon privat** |  |
| **Natel privat** |  |
| **Email privat** |  |
| **Arbeitgeber** |  |
| **Telefon geschäft** |  |
| **Natel geschäft** |  |
| **Email geschäft** |  |

|  |  |  |
| --- | --- | --- |
| **Mit dem Betreuer wurde schon gesprochen** | | ja  nein |
| **Wurde die Betreuung schon zugesagt** | | ja  nein  eventuell |
| **Allfällige Bemerkungen:** | | |
| **Für Schulinterne Betreuung** | **Für Externe Betreuung** | |
| Betreuerfavoriten:  Martin Hager | Grund für Betreuerwunsch: | |
| Betreuer welche nicht in Frage kommen: | Verhältnis zum Betreuer  Vorgesetzter  Arbeitskollege  Kollege  ……………………………………. | |