

# AMOS-Project 3 – QAchat

## Planning Documents



| Last Name | First Name | GitHub User Name | Email Address  |
|-----------|------------|------------------|--|
| Alkadour  | Abdelkader | Kadi-7           | a.alkadour@campus.tu-berlin.de, basickadour@gmail.com            |
| Arifin    | Hafidz     | zenzeii          | h.arifin@campus.tu-berlin.de, hafidz.harifin@gmail.com           |
| El Brak   | Sara       | SaraElBrak       | sara.el@fau.de   |
| Erben     | Emanuel    | emuguy1          | emanuel.erben@fau.de, emanuel.erben@gmail.com                    |
| Konheiser | Tobias     | tkonheiser       | tobias.konheiser@fau.de  |
| Stojkovic | Vukica     | vukica1          | vukica.stojkovic@yahoo.de / vukica.stojkovic@campus.tu-berlin.de |
| Nützel    | Felix      | Felix-012        | felix.nuetzel@fau.de   |
| Palarus   | Jesse      | jtshark          | j.palarus@campus.tu-berlin.de, jtsharkjtshark@gmail.com          |
| Pucic     | Amela      | amela16          | a.pucic@campus.tu-berlin.de, amela1999@hotmail.de                |
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| #  | Meeting Day | Product Owner                  | Software Developer | Release Manager | Scrum Master     | Comment       |
|----|-------------|--------------------------------|--------------------|-----------------|------------------|---------------|
| 1  | 2022-10-19  | Tobias Konheiser, Sara El Brak | Everyone else      | Emanuel Erben   | Vukica Stojkovic |               |
| 2  | 2022-10-26  | Sara El Brak, Tobias Konheiser | Everyone else      | Emanuel Erben   | Vukica Stojkovic |               |
| 3  | 2022-11-02  | Tobias Konheiser, Sara El Brak | Everyone else      | Emanuel Erben   | Vukica Stojkovic |               |
| 4  | 2022-11-09  | Sara El Brak, Tobias Konheiser | Everyone else      | Emanuel Erben   | Vukica Stojkovic |               |
| 5  | 2022-11-16  | Tobias Konheiser, Sara El Brak | Everyone else      | Emanuel Erben   | Vukica Stojkovic |               |
| 6  | 2022-11-23  | Sara El Brak, Tobias Konheiser | Everyone else      | Emanuel Erben   | Vukica Stojkovic |               |
| 7  | 2022-11-30  | Tobias Konheiser, Sara El Brak | Everyone else      | Emanuel Erben   | Vukica Stojkovic | Mid-term due  |
| 8  | 2022-12-07  | Sara El Brak, Tobias Konheiser | Everyone else      | Emanuel Erben   | Vukica Stojkovic |               |
| 9  | 2022-12-14  | Tobias Konheiser, Sara El Brak | Everyone else      | Emanuel Erben   | Vukica Stojkovic |               |
| 10 | 2023-01-11  | Sara El Brak, Tobias Konheiser | Everyone else      | Emanuel Erben   | Vukica Stojkovic |               |
| 11 | 2023-01-18  | Tobias Konheiser, Sara El Brak | Everyone else      | Emanuel Erben   | Vukica Stojkovic |               |
| 12 | 2023-01-25  | Sara El Brak, Tobias Konheiser | Everyone else      | Emanuel Erben   | Vukica Stojkovic |               |
| 13 | 2023-02-01  | Tobias Konheiser, Sara El Brak | Everyone else      | Emanuel Erben   | Vukica Stojkovic |               |
| 14 | 2023-02-08  | Sara El Brak, Tobias Konheiser | Everyone else      | Emanuel Erben   | Vukica Stojkovic | Demo day!     |
| 15 | 2023-02-15  | Tobias Konheiser, Sara El Brak | Everyone else      | Emanuel Erben   | Vukica Stojkovic | Retrospective |
|    |             |                                |                    |                 |                  |               |
|    |             |                                |                    |                 |                  |               |
|    |             |                                |                    |                 |                  |               |

|                                |   |
|--------------------------------|---|
| <b>Goals</b>                   | Develop a good quality and working Chatbot based on defined requirements                            |
|                                | Achieve the technical target in good atmosphere and clear communication                             |
| <b>Meeting norms</b>           | Meeting topics are inserted in the agenda before the meeting starts                                 |
|                                | Everybody aims to be on time, but being late is communicated beforehand and handled in an agile way |
|                                | Meeting topics need to be sharp and precise   |
|                                | Meeting time must not be exceeded more than 30 min, otherwise schedule a new meeting                |
| <b>Working norms</b>           | We value quality over quantity  |
|                                | Everyone contributes regularly and communicates openly  |
| <b>Coordination norms</b>      | Everyone sticks to their roles and in case of problems communicates                                 |
|                                |   |
| <b>Communication norms</b>     | We check our communication channels at least once a day   |
|                                | Important messages are sent in our WhatsApp group   |
| <b>Consideration norms</b>     | We discuss disagreement openly  |
|                                | We vote for a final resolution  |
|                                | We help in case someone needs it  |
| <b>Cont. improvement norms</b> | Happiness index and stand up emails are reviewed in team meeting                                    |
|                                | If problems are recognized escalate them to the team  |
| <b>Rewards</b>                 | Online team event   |
|                                | Everyone celebrates via a reaction in the zoom chat after each sprint                               |
| <b>Sanctions</b>               | Assign unwanted jobs to person (rework a file, ...)   |
|                                |   |
| <b>Signatures</b>              | Tobias Konheiser  |
|                                | Hafidz Arifin   |
|                                | Amela Pucic   |
|                                | Emanuel Erben   |
|                                | Sara El Brak  |
|                                | Jesse Palarus   |
|                                | Felix Nützel  |
|                                | Abdelkader Alkadour   |
|                                | Vukica Stojkovic  |

| Product Vision   | Project Mission   |
|--|---|
| QAchat envisions an environment in which access to knowledge is just a message away. We aim to leverage the rapid advancement in language model technologies to create a seamless interface that enables employees to get their questions answered accurately, quickly, efficiently, and with ease - by a general language model that is trained on specific knowledge. Our goal is to provide a simple and convenient point of contact, with an easy-to-use interface that is integrated into widely used communication tools, and to make knowledge accessible to everyone - irrespective of their geographical location, language or technical ability. | QAchat evaluates newly developed LLMs to create a chatbot that provides users with accurate, reliable and context-specific answers to their questions - with a focus on accessibility and ease of use. The best suited network is trained on provided data that is collected from existing communication and documentation sources. The model is made available to users through a Slackbot integration, where questions can be asked and answers are provided. |

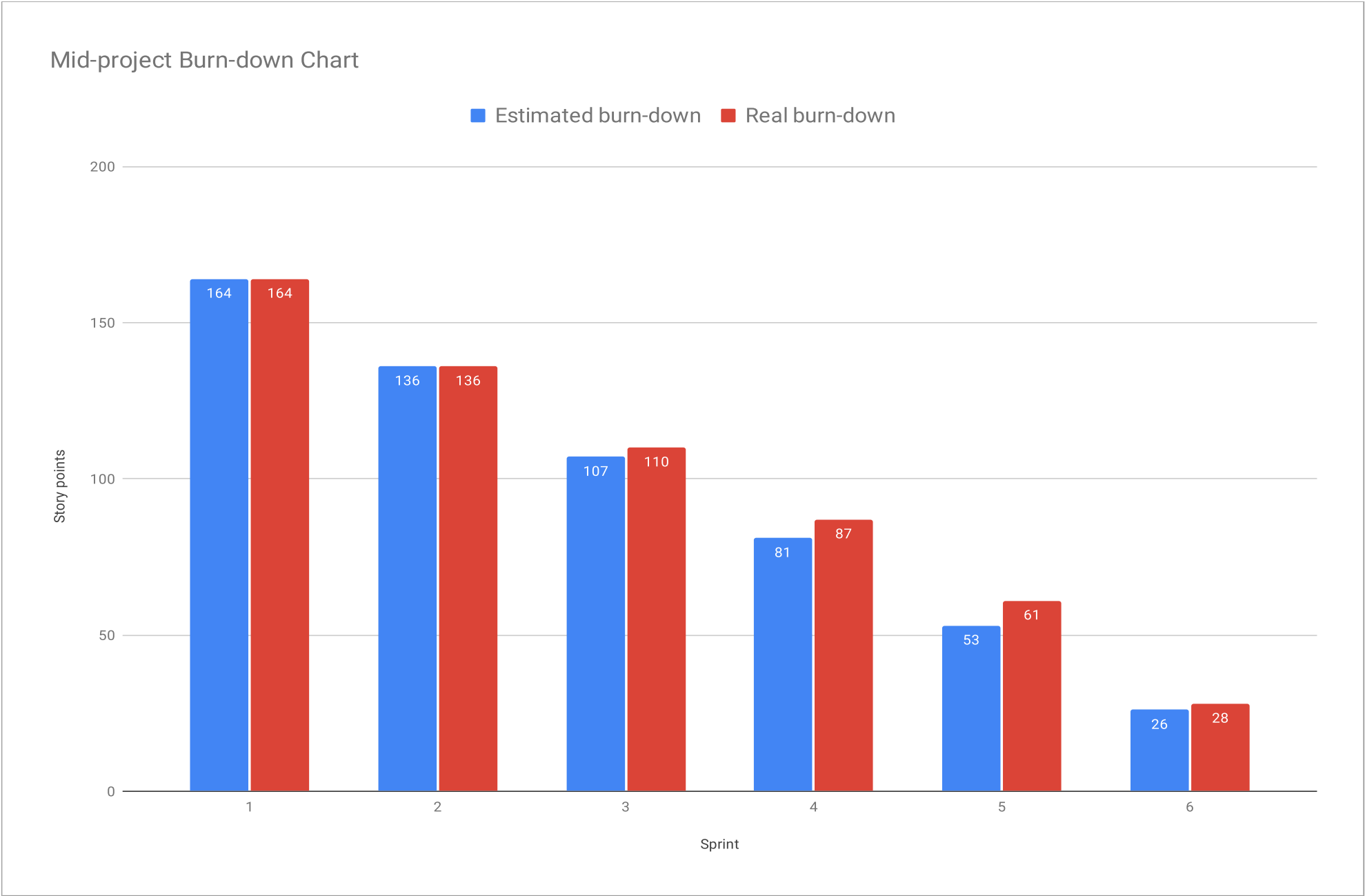
|                                   |  |
|-----------------------------------|--|
| <b>Project Name</b>               | ...  |
| <b>Online team meeting</b>        | <a href="https://fau.zoom.us/j/68283073150">https://fau.zoom.us/j/68283073150</a>  |
| <b>Production system (if any)</b> | ...  |
| <b>Test system (if any)</b>       | ...  |
| <b>GitHub repository</b>          | <a href="https://github.com/amosproj/amos2023ss03-gachat">amosproj/amos2023ss03-gachat (github.com)</a>  |
| <b>GitHub feature board</b>       | <a href="https://github.com/amos2023ss03-feature-board">amos2023ss03-feature-board (github.com)</a>  |
| <b>GitHub impediments backlog</b> | <a href="https://github.com/amos2023ss03-impediments-backlog">amos2023ss03-impediments-backlog (github.com)</a>  |
| <b>Team T-shirt (white)</b>       | ...  |
| <b>Team T-shirt (black)</b>       | woman design: <a href="https://www.shirtinator.de/t-shirts/gestalten/t-shirt-bedrucken#/load/share/931c832c-67cc-46ca-bca7-e49019a052f2">https://www.shirtinator.de/t-shirts/gestalten/t-shirt-bedrucken#/load/share/931c832c-67cc-46ca-bca7-e49019a052f2</a><br>man design: <a href="https://www.shirtinator.de/t-shirts/gestalten/t-shirt-bedrucken#/load/share/d45e26d4-77f0-42cf-a412-f67b2071facf">https://www.shirtinator.de/t-shirts/gestalten/t-shirt-bedrucken#/load/share/d45e26d4-77f0-42cf-a412-f67b2071facf</a> |
| <b>Additional materials</b>       | ...  |
| <b>Course information</b>         | <a href="https://amos.uni1.de">https://amos.uni1.de</a>  |
| <b>Happiness index tool</b>       | <a href="https://happy-amos.appspot.com/">https://happy-amos.appspot.com/</a>  |
| <b>Planning Poker</b>             | <a href="https://planningpokeronline.com/">https://planningpokeronline.com/</a>  |
|                                   |  |
|                                   |  |
|                                   |  |

[illegible]

| Sprint          | Theme  | Goal  | Feature Name                                       | Est. Size | Est. Remaining | Real Size | Real Remaining |
|-----------------|--|---|--|-----------|----------------|-----------|----------------|
| <b>Release</b>  |  |   |  |           |                |           |                |
|                 | <b>Total</b>                                 |   |  | 164       | 164            |           |                |
| <b>Sprints</b>  |  |   |  |           |                |           |                |
| 1               | Large Language Model methods                 |   |  | 28        | 164            | 28        | 164            |
| 2               | Software architecture                        |   |  | 29        | 136            | 26        | 136            |
| 3               | Large Language Model prototypes              |   |  | 26        | 107            | 23        | 110            |
| 4               | Code frameworks                              |   |  | 28        | 81             | 26        | 87             |
| 5               | Setup & Documentation                        |   |  | 27        | 53             | 33        | 61             |
| 6               | Data Integration & Documentation Enhancement |   |  | 26        | 26             | 28        | 28             |
| <b>Features</b> |  |   |  |           |                |           |                |
| 1               | Large Language Model methods                 |   |  |           |                |           |                |
|                 |  | Identify the existing capabilities of LLM methods and their underlying algorithms |  |           |                |           |                |
|                 |  |   | Research Slack bot requirement                     | 5         |                | 5         |                |
|                 |  |   | Research LLM models                                | 5         |                | 5         |                |
|                 |  |   | Research LLM method 1 (search API) properties      | 5         |                | 5         |                |
|                 |  |   | Research LLM method 2 (semantic search) properties | 5         |                | 5         |                |
|                 |  |   | Research LLM method 3 (fine tuning) properties     | 5         |                | 5         |                |
|                 |  |   | Team logo design                                   | 3         |                | 3         |                |
| 2               | Software architecture                        |   |  |           |                |           |                |
|                 |  | Determine the software architecture and the used components                       |  |           |                |           |                |
|                 |  |   | Define diagram of runtime components               | 5         |                | 5         |                |
|                 |  |   | Define diagram of code components                  | 8         |                | 8         |                |
|                 |  |   | A summary of the underlying technology stack       | 5         |                | 3         |                |
|                 |  |   | Textual explanation of the diagrams and choices    | 5         |                | 5         |                |
|                 |  |   | Initialize code repository                         | 3         |                | 3         |                |
|                 |  |   | Initialize the software bill of materials          | 3         |                | 2         |                |
| 3               | Large Language Model prototypes              |   |  |           |                |           |                |
|                 |  | Further evaluate the functionality of each LLM method                             |  |           |                |           |                |
|                 |  |   | Research semantic search vector storage            | 5         |                | 3         |                |
|                 |  |   | Research Slack web server hosting                  | 5         |                | 3         |                |
|                 |  |   | Implement Alpaca/LLaMA LLM prototype               | 3         |                | 5         |                |
|                 |  |   | Implement BERT LLM prototype                       | 5         |                | 3         |                |
|                 |  |   | Implement T5 LLM prototype                         | 3         |                | 3         |                |
|                 |  |   | Create the LLM-server code framework               | 3         |                | 5         |                |
|                 |  |   | Create coding guidelines                           | 2         |                | 1         |                |
| 4               | Code frameworks                              |   |  |           |                |           |                |
|                 |  | Provide a structured foundation for building the chatbot                          |  |           |                |           |                |
|                 |  |   | Research LLM server hosting                        | 5         |                | 5         |                |
|                 |  |   | Determine the communication protocols used         | 3         |                | 3         |                |
|                 |  |   | Create Slack bot code framework                    | 5         |                | 3         |                |
|                 |  |   | Create the semantic search code framework          | 3         |                | 3         |                |
|                 |  |   | Create the data processing code framework          | 3         |                | 5         |                |
|                 |  |   | Update product vision and product mission          | 3         |                | 2         |                |
|                 |  |   | Test Slack   | 3         |                | 2         |                |
|                 |  |   | Test DeepL API                                     | 3         |                | 3         |                |
| 5               | Setup & Documentation                        |   |  |           |                |           |                |



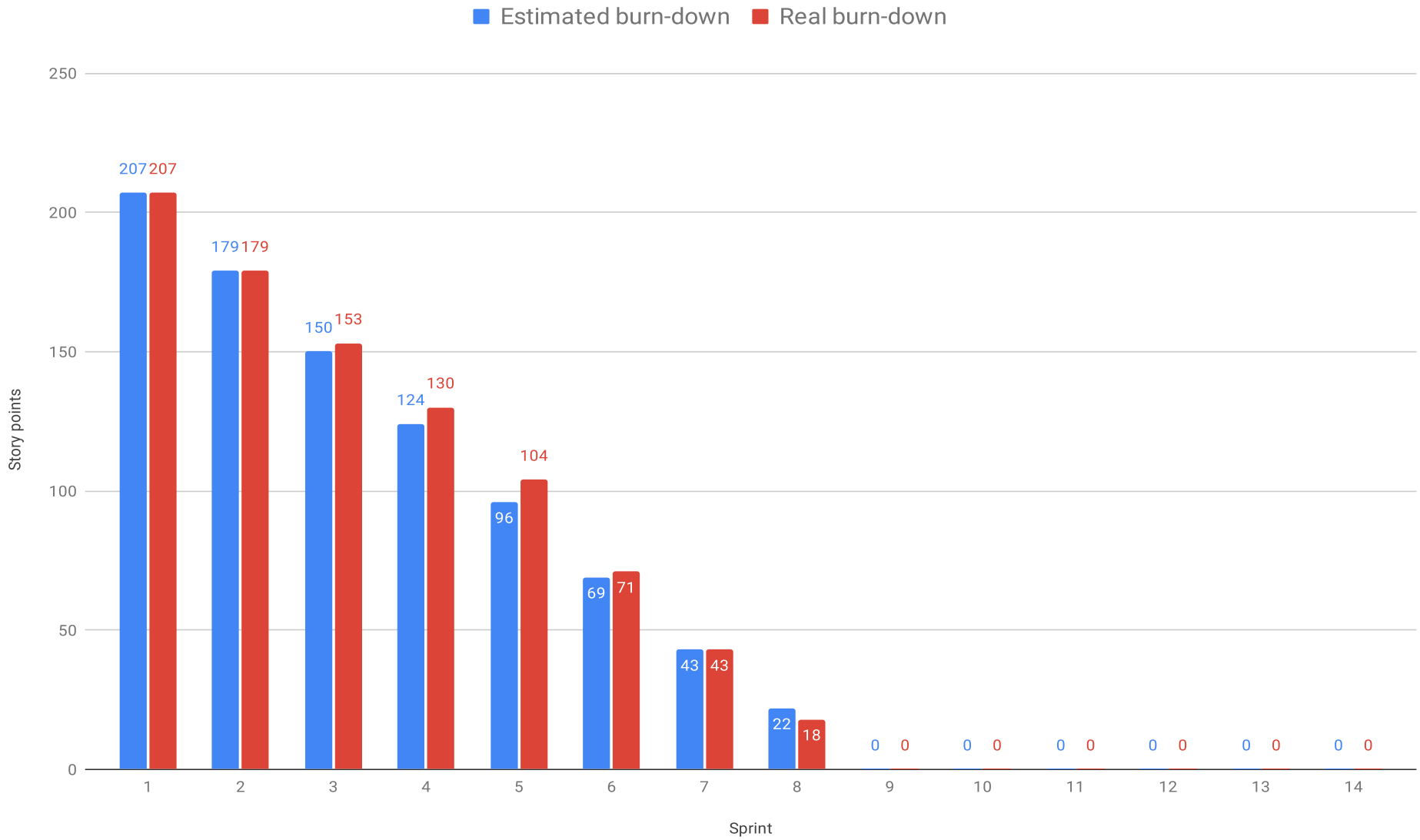
| Sprint | Theme  | Goal  | Feature Name  | Est. Size | Est. Remaining | Real Size | Real Remaining |
|--------|--|---|---|-----------|----------------|-----------|----------------|
|        |  | Prepare the necessary setups and extend the documentation               |   |           |                |           |                |
|        |  |   | Create a build process video  | 5         |                | 8         |                |
|        |  |   | Create a secure and private file exchange channel                     | 3         |                | 3         |                |
|        |  |   | Create testing setup  | 5         |                | 8         |                |
|        |  |   | Set up vector database  | 2         |                | 2         |                |
|        |  |   | Set up LLM for embedding generation                                   | 2         |                | 2         |                |
|        |  |   | Move existing documentation to GitHub Wiki                            | 5         |                | 5         |                |
|        |  |   | Document Slackbot setup process                                       | 2         |                | 2         |                |
|        |  |   | Set up LLM for chat message generation                                | 3         |                | 3         |                |
| 6      | Data Integration & Documentation Enhancement |   |   |           |                |           |                |
|        |  | Enhance data integration capabilities and improve project documentation |   |           |                |           |                |
|        |  |   | Setup LLM in the Google cloud   | 8         |                | 8         |                |
|        |  |   | Implement a blacklist for Confluence pages and other data sources     | 3         |                | 3         |                |
|        |  |   | Read data from Confluence into vector database                        | 5         |                | 5         |                |
|        |  |   | Read data from PDF into vector database                               | 3         |                | 5         |                |
|        |  |   | Initialize user, (technical) design, and build/deploy documentation   | 5         |                | 5         |                |
|        |  |   | Clean-up mid-project release plan & create final project release plan | 2         |                | 2         |                |



| Sprint          | Theme  | Goal  | Feature Name | Est. Size | Est. Remaining | Real Size | Real Remaining |
|-----------------|--|---|--------------|-----------|----------------|-----------|----------------|
| <b>Release</b>  |  |   |              |           |                |           |                |
|                 | <b>Total</b>                                 |   |              | 207       | 207            |           |                |
| <b>Sprints</b>  |  |   |              |           |                |           |                |
| 1               | Large Language Model methods                 |   |              | 28        | 207            | 28        | 207            |
| 2               | Software architecture                        |   |              | 29        | 179            | 26        | 179            |
| 3               | Large Language Model prototypes              |   |              | 26        | 150            | 23        | 153            |
| 4               | Code frameworks                              |   |              | 28        | 124            | 26        | 130            |
| 5               | Setup & Documentation                        |   |              | 27        | 96             | 33        | 104            |
| 6               | Data Integration & Documentation Enhancement |   |              | 26        | 69             | 28        | 71             |
| 7               | Cloud Hosting & Data Integration             |   |              | 21        | 43             | 25        | 43             |
| 8               | Cloud Documentation & Database Management    |   |              | 22        | 22             |           | 18             |
| 9               |  |   |              |           | 0              |           | 0              |
| 10              |  |   |              |           | 0              |           | 0              |
| 11              |  |   |              |           | 0              |           | 0              |
| 12              |  |   |              |           | 0              |           | 0              |
| 13              |  |   |              |           | 0              |           | 0              |
| 14              |  |   |              |           | 0              |           | 0              |
| <b>Features</b> |  |   |              |           |                |           |                |
| 1               | Large Language Model methods                 |   |              |           |                |           |                |
|                 |  | Identify the existing capabilities of LLM methods and their underlying algorithms |              |           |                |           |                |
|                 |  | Research Slack bot requirement  |              | 5         |                | 5         |                |
|                 |  | Research LLM models   |              | 5         |                | 5         |                |
|                 |  | Research LLM method 1 (search API) properties                                     |              | 5         |                | 5         |                |
|                 |  | Research LLM method 2 (semantic search) properties                                |              | 5         |                | 5         |                |
|                 |  | Research LLM method 3 (fine tuning) properties                                    |              | 5         |                | 5         |                |
|                 |  | Team logo design  |              | 3         |                | 3         |                |
| 2               | Software architecture                        |   |              |           |                |           |                |
|                 |  | Determine the software architecture and the used components                       |              |           |                |           |                |
|                 |  | Define diagram of runtime components  |              | 5         |                | 5         |                |
|                 |  | Define diagram of code components   |              | 8         |                | 8         |                |
|                 |  | A summary of the underlying technology stack                                      |              | 5         |                | 3         |                |
|                 |  | Textual explanation of the diagrams and choices                                   |              | 5         |                | 5         |                |
|                 |  | Initialize code repository  |              | 3         |                | 3         |                |
|                 |  | Initialize the software bill of materials   |              | 3         |                | 2         |                |
| 3               | Large Language Model prototypes              |   |              |           |                |           |                |
|                 |  | Further evaluate the functionality of each LLM method                             |              |           |                |           |                |
|                 |  | Research semantic search vector storage   |              | 5         |                | 3         |                |
|                 |  | Research Slack web server hosting   |              | 5         |                | 3         |                |
|                 |  | Implement Alpaca/LLaMA LLM prototype  |              | 3         |                | 5         |                |
|                 |  | Implement BERT LLM prototype  |              | 5         |                | 3         |                |
|                 |  | Implement T5 LLM prototype  |              | 3         |                | 3         |                |
|                 |  | Create the LLM-server code framework  |              | 3         |                | 5         |                |
|                 |  | Create coding guidelines  |              | 2         |                | 1         |                |

| Sprint | Theme  | Goal  | Feature Name  | Est. Size | Est. Remaining | Real Size | Real Remaining |
|--------|--|---|---|-----------|----------------|-----------|----------------|
| 4      | Code frameworks                              |   |   |           |                |           |                |
|        |  | Provide a structured foundation for building the chatbot                      |   |           |                |           |                |
|        |  |   | Research LLM server hosting   | 5         |                | 5         |                |
|        |  |   | Determine the communication protocols used                            | 3         |                | 3         |                |
|        |  |   | Create Slack bot code framework                                       | 5         |                | 3         |                |
|        |  |   | Create the semantic search code framework                             | 3         |                | 3         |                |
|        |  |   | Create the data processing code framework                             | 3         |                | 5         |                |
|        |  |   | Update product vision and product mission                             | 3         |                | 2         |                |
|        |  |   | Test Slack  | 3         |                | 2         |                |
|        |  |   | Test DeepL API  | 3         |                | 3         |                |
| 5      | Setup & Documentation                        |   |   |           |                |           |                |
|        |  | Prepare the necessary setups and extend the documentation                     |   |           |                |           |                |
|        |  |   | Create a build process video  | 5         |                | 8         |                |
|        |  |   | Create a secure and private file exchange channel                     | 3         |                | 3         |                |
|        |  |   | Create testing setup  | 5         |                | 8         |                |
|        |  |   | Set up vector database  | 2         |                | 2         |                |
|        |  |   | Set up LLM for embedding generation                                   | 2         |                | 2         |                |
|        |  |   | Move existing documentation to GitHub Wiki                            | 5         |                | 5         |                |
|        |  |   | Document Slackbot setup process                                       | 2         |                | 2         |                |
|        |  |   | Set up LLM for chat message generation                                | 3         |                | 3         |                |
| 6      | Data Integration & Documentation Enhancement |   |   |           |                |           |                |
|        |  | Enhance data integration capabilities and improve project documentation       |   |           |                |           |                |
|        |  |   | Setup LLM in the Google cloud   | 8         |                | 8         |                |
|        |  |   | Implement a blacklist for Confluence pages and other data sources     | 3         |                | 3         |                |
|        |  |   | Read data from Confluence into vector database                        | 5         |                | 5         |                |
|        |  |   | Read data from PDF into vector database                               | 3         |                | 5         |                |
|        |  |   | Initialize user, (technical) design, and build/deploy documentation   | 5         |                | 5         |                |
|        |  |   | Clean-up mid-project release plan & create final project release plan | 2         |                | 2         |                |
| 7      | Cloud Hosting & Data Integration             |   |   |           |                |           |                |
|        |  | Establish cloud hosting of the software and expand data integration abilities |   |           |                |           |                |
|        |  |   | Setup LLM in the Google cloud   | 5         |                | 8         |                |
|        |  |   | Read data from Confluence into vector database                        | 3         |                | 5         |                |
|        |  |   | Document and summarise all services available to the project team     | 2         |                | 1         |                |
|        |  |   | Read data from Slack conversation into vector database                | 5         |                | 5         |                |
|        |  |   | Detect Slackbot language  | 3         |                | 3         |                |
|        |  |   | Create integration tests for database reading and writing             | 3         |                | 3         |                |
| 8      | Cloud Documentation & Database Management    |   |   |           |                |           |                |
|        |  | Document cloud hosting setup and further enhance database management          |   |           |                |           |                |
|        |  |   | Setup LLM in the Google cloud (documentation)                         | 3         |                |           |                |
|        |  |   | Check conformity with NDA   | 1         |                |           |                |
|        |  |   | Cleanup the repository  | 5         |                |           |                |
|        |  |   | Split up long text block for database                                 | 5         |                |           |                |
|        |  |   | Delete outdated database entries for all data sources                 | 5         |                |           |                |
|        |  |   | Read data from Confluence into vector database (finalization)         | 3         |                |           |                |

Final-project Burn-down Chart



| #  | Feature Definition of Done  | Sprint Release Definition of Done   | Project Release Definition of Done                  |
|----|---|---|---|
| 10 | Acceptance criteria are met.  |   |   |
| 11 | Work products are uploaded to the Github repository.                |   |   |
| 12 | A pull request is created for each related branch.                  |   |   |
| 13 | The work products in the pull requests are reviewed.                |   |   |
| 14 | The corresponding branches are merged and closed.                   |   |   |
| 15 | The bill of materials section of the planning documents is updated. |   |   |
| 16 | All defined conventions are complied with.                          |   |   |
|    |   |   |   |
| 21 |   | A release candidate with a working and meaningful increment to the previous sprint is tagged. |   |
| 22 |   | Previously established features and security mechanisms must continue to work.                |   |
| 23 |   |   |   |
|    |   |   |   |
| 31 |   |   | The project can be successfully built and deployed. |
| 32 |   |   | All created tests are passed.                       |
| 34 |   |   | The implemented features pass a simple user test.   |
| 35 |   |   | Developer documentation is created.                 |
| 36 |   |   | User documentation is created and updated           |
| 37 |   |   | The release has been approved by all team members   |

| Type                | Link / reference  |
|---------------------|---|
| Team Meeting Agenda | <a href="#">Team Meeting Agenda</a>   |
| Checklists          | <a href="https://docs.google.com/spreadsheets/d/1K46lmoocSKWYXWQgVVGndU6QzNazhF-i7bsbbovnpMk/edit?usp=sharing">https://docs.google.com/spreadsheets/d/1K46lmoocSKWYXWQgVVGndU6QzNazhF-i7bsbbovnpMk/edit?usp=sharing</a> |
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| #  | Context                             | Name                  | Version  | License                            | Comment   |
|----|-------------------------------------|-----------------------|----------|------------------------------------|---|
| 1  | Programming Language                | python                | 3.8      | Python License 2.0.1               |   |
| 2  | Backend-as-a-Service (BaaS)         | supabase              | 1.0.3    | MIT License                        |   |
| 3  | Python-C++ Integration              | llama-cpp-python      | 0.1.39   | MIT License                        |   |
| 4  | Natural Language Processing (NLP)   | langchain             | 0.0.154  | MIT License                        |   |
| 5  | Slack Integration                   | slack_sdk             | 3.21.3   | MIT License                        |   |
| 6  | Artificial Intelligence (AI)        | openai                | 0.27.5   | MIT License                        |   |
| 7  | Atlassian API Wrapper               | atlassian-python-api  | 3.36.0   | Apache License 2.0                 |   |
| 8  | Web Automation Testing              | selenium              | 4.9.0    | Apache License 2.0                 |   |
| 9  | Numerical Computing                 | numpy                 | 1.24.3   | BSD License (BSD-3-Clause)         |   |
| 10 | Data Manipulation                   | pandas                | 2.0.1    | BSD License (BSD-3-Clause)         |   |
| 11 | Aleph Alpha API Client              | aleph-alpha-client    | 3.1.0    | MIT License                        |   |
| 12 | Sentence Embeddings                 | sentence_transformers | 2.2.2    | Apache License 2.0                 |   |
| 13 | Embedding for Instructors           | InstructorEmbedding   | 1.0.0    | MIT License                        |   |
| 14 | Slack App Framework                 | slack-bolt            | 1.18.0   | MIT License                        |   |
| 15 | Slack App Framework                 | slack-sdk             | 3.21.3   | MIT License                        |   |
| 16 | Machine Translation                 | deepl                 | 1.14.0   | MIT License                        |   |
| 17 | Environment Variables               | python-dotenv         | 1.0.0    | BSD License (BSD-3-Clause)         |   |
| 18 | Hugging Face Model Hub              | huggingface_hub       | 0.14.1   | Apache Software License            |   |
| 19 | Type Inspection                     | typing-inspect        | 0.8.0    | MIT License                        |   |
| 20 | Type Hints Extensions               | typing_extensions     | 4.5.0    | Python Software Foundation License |   |
| 21 | Unit Testing                        | pytest                | 7.3.1    | MIT License                        |   |
| 22 | PDF Parsing                         | pdfminer.six          | 20221105 | MIT License                        |   |
| 23 | Deep Learning                       | pytorch               | 1.0.2    | BSD-3                              |   |
| 24 | Natural Language Processing (NLP)   | transformers          |          |                                    |   |
| 25 | Natural Language Toolkit            | nltk                  | 3.8.1    | Apache Software License            |   |
| 26 | Optical Character Recognition (OCR) | pytesseract           | 0.3.10   | Apache Software License            | image analysis. Tesseract needs to be installed and dpath added |



| Last Name | First Name | Value |  |      |                  |  |  |
|-----------|------------|-------|--|------|------------------|--|--|
| Alkadour  | Abdelkader | 0     |  | 0.00 | OK               |  |  |
| Arifin    | Hafidz     | 0     |  |      |                  |  |  |
| El Brak   | Sara       |       |  |      |                  |  |  |
| Erben     | Emanuel    | 0     |  |      |                  |  |  |
| Konheiser | Tobias     |       |  | 0    | No size          |  |  |
| Stojkovic | Vukica     |       |  | 1    | Trivial size     |  |  |
| Nützel    | Felix      | 0     |  | 2    | Small size       |  |  |
| Palarus   | Jesse      | 0     |  | 3    | Medium size      |  |  |
| Pucic     | Amela      | 0     |  | 5    | Large size       |  |  |
|           |            |       |  | 8    | Very large size  |  |  |
|           |            |       |  | 13   | Too large (size) |  |  |
|           |            |       |  |      |                  |  |  |
|           |            |       |  |      |                  |  |  |
|           |            |       |  |      |                  |  |  |
|           |            |       |  |      |                  |  |  |
|           |            |       |  |      |                  |  |  |
|           |            |       |  |      |                  |  |  |
|           |            |       |  |      |                  |  |  |
|           |            |       |  |      |                  |  |  |

## Additional Documentation

Team Meeting Agenda "AMOS QAchat"

Date: 2023\_06\_14

| ID | Topic                | Time | Author    | Description  | Result | Decision | Responsible |
|----|----------------------|------|-----------|--|--------|----------|-------------|
| 1  | Sprint Review        | 30   | PO        | - Release Manager creates release candidate build<br>- PO walks through "awaiting review" tickets, probing SDs                                   |        |          |             |
| 2  | Sprint Release       | 5    | PO        | - PO decides release<br>- Release Manager creates release  |        |          |             |
| 3  | Sprint Retrospective | 15   | SM        | - SM reviews the impediments<br>- SM performs roll calls<br>- Everyone answers happiness index<br>- Review of Happiness index and standup emails |        |          |             |
| 4  | Sprint Planning      | 30   | PO        | - PO works through product backlog<br>- SD perform planning poker<br>- Introduce sprint goal   |        |          |             |
| 5  | Planning to the End  | 5    | Tobi      | What do you want to implement in any case?   |        |          |             |
| 6  |                      |      |           |  |        |          |             |
| 7  |                      |      |           |  |        |          |             |
| 8  |                      |      |           |  |        |          |             |
| 9  |                      |      |           |  |        |          |             |
| 10 | Open Points          | 5    | Everybody |  |        |          |             |
|    |                      | 90   |           |  |        |          |             |

Team Meeting Agenda "AMOS QAchat"

Date: 2023\_06\_07

| ID | Topic                | Time | Author    | Description  | Result | Decision | Responsible |
|----|----------------------|------|-----------|--|--------|----------|-------------|
| 1  | Sprint Review        | 30   | PO        | - Release Manager creates release candidate build<br>- PO walks through "awaiting review" tickets, probing SDs                                   |        |          |             |
| 2  | Sprint Release       | 5    | PO        | - PO decides release<br>- Release Manager creates release  |        |          |             |
| 3  | Sprint Retrospective | 15   | SM        | - SM reviews the impediments<br>- SM performs roll calls<br>- Everyone answers happiness index<br>- Review of Happiness index and standup emails |        |          |             |
| 4  | Sprint Planning      | 30   | PO        | - PO works through product backlog<br>- SD perform planning poker<br>- Introduce sprint goal   |        |          |             |
| 5  | NDA signing          | 1    | Everyone  | Reminder   |        |          |             |
| 6  |                      |      |           |  |        |          |             |
| 7  |                      |      |           |  |        |          |             |
| 8  |                      |      |           |  |        |          |             |
| 9  |                      |      |           |  |        |          |             |
| 10 | Open Points          | 5    | Everybody |  |        |          |             |
|    |                      | 86   |           |  |        |          |             |

Team Meeting Agenda "AMOS QChat"

Date: 2023\_05\_22

| ID | Topic                                 | Time | Author | Description  | Result | Decision | Responsible |
|----|---------------------------------------|------|--------|--|--------|----------|-------------|
| 1  | Confluence Data Reading Demonstration | 10   | Hafidz | short demo of current process for Confluence data extraction   |        |          |             |
| 2  | Cloud Hosting Demonstration           | 10   | Jesse  | demo of Google Cloud hosting structure   |        |          |             |
| 3  | questions from Sebastian              | 10   |        | Google Docs contain a lot of information   |        |          |             |
| 4  | questions to Sebastian                | 5    |        | In which form should Slack channels be scrapped -> add scrapper to channel manually  |        |          |             |
| 5  | comments from Sebastian               |      |        | <a href="https://huggingface.co/spaces/HuggingFaceH4/open_llm_leaderboard">https://huggingface.co/spaces/HuggingFaceH4/open_llm_leaderboard</a><br><a href="https://www.terraform.io/">https://www.terraform.io/</a> |        |          |             |
| 6  | ToDo                                  |      |        | sign NBA   |        |          |             |
| 7  |                                       |      |        |  |        |          |             |
| 8  |                                       |      |        |  |        |          |             |
| 9  |                                       |      |        |  |        |          |             |
| 10 |                                       |      |        |  |        |          |             |
|    |                                       | 35   |        |  |        |          |             |

Team Meeting Agenda "AMOS QAchat"

Date: 2023\_05\_31

| ID | Topic                  | Time | Author    | Description  | Result | Decision | Responsible |
|----|------------------------|------|-----------|--|--------|----------|-------------|
| 1  | Sprint Review          | 30   | PO        | - Release Manager creates release candidate build<br>- PO walks through "awaiting review" tickets, probing SDs                                   |        |          |             |
| 2  | Sprint Release         | 5    | PO        | - PO decides release<br>- Release Manager creates release and mid project tag  |        |          |             |
| 3  | Sprint Retrospective   | 15   | SM        | - SM reviews the impediments<br>- SM performs roll calls<br>- Everyone answers happiness index<br>- Review of Happiness index and standup emails |        |          |             |
| 4  | Sprint Planning        | 30   | PO        | - PO works through product backlog<br>- SD perform planning poker  |        |          |             |
| 5  | Branch Protection Rule | 5    | Emanuel   |  |        |          |             |
| 6  |                        |      |           |  |        |          |             |
| 7  |                        |      |           |  |        |          |             |
| 8  |                        |      |           |  |        |          |             |
| 9  |                        |      |           |  |        |          |             |
| 10 | Open Points            | 5    | Everybody |  |        |          |             |
|    |                        | 90   |           |  |        |          |             |

Team Meeting Agenda "AMOS QAchat"

Date: 2023\_05\_24

| ID | Topic                | Time | Author    | Description  | Result | Decision | Responsible |
|----|----------------------|------|-----------|--|--------|----------|-------------|
| 1  | Sprint Review        | 30   | PO        | - Release Manager creates release candidate build<br>- PO walks through "awaiting review" tickets, probing SDs                                   |        |          |             |
| 2  | Sprint Release       | 5    | PO        | - PO decides release<br>- Release Manager creates release  |        |          |             |
| 3  | Sprint Retrospective | 15   | SM        | - SM reviews the impediments<br>- SM performs roll calls<br>- Everyone answers happiness index<br>- Review of Happiness index and standup emails |        |          |             |
| 4  | Sprint Planning      | 30   | PO        | - PO works through product backlog<br>- SD perform planning poker  |        |          |             |
| 5  |                      |      |           |  |        |          |             |
| 6  |                      |      |           |  |        |          |             |
| 7  |                      |      |           |  |        |          |             |
| 8  |                      |      |           |  |        |          |             |
| 9  |                      |      |           |  |        |          |             |
| 10 | Open Points          | 5    | Everybody |  |        |          |             |
|    |                      | 85   |           |  |        |          |             |

Team Meeting Agenda "AMOS QAchat"

Date: 2023\_05\_22

| ID | Topic                          | Time | Author | Description   | Result  | Decision | Responsible |
|----|--------------------------------|------|--------|---|---|----------|-------------|
| 1  | demonstration of current state | 10   |        |   |   |          |             |
| 2  | questions from Sebastian       | 10   |        | TBD   |   |          |             |
| 3  | questions to Sebastian         | 10   | Tobi   | <div>- About the NDA: Shoud we plan for real data or create dummy data?<br/>- Which datatypes should be supported (PDF, Docx, HTML, Confluence, Slack)?<br/>- Who will be allowed to add data to the database?<br/>- Which interface (CLI, GUI) should be created for data ingestion?</div> | <div>- NDA for real data<br/>- focus on Confluence, Slack General channel would be gread<br/>- automatic database update with blacklist</div> |          |             |
| 4  | questions to Sebastian         | 20   | Team   | <div>- should there be a IAM or sth like this for the data when the user ask a question<br/>- in which language should the ChatBot answer (always german???)</div>  | <div>- language change would be nice to have</div>  |          |             |
| 5  |                                |      |        |   |   |          |             |
| 6  |                                |      |        |   |   |          |             |
| 7  |                                |      |        |   |   |          |             |
| 8  |                                |      |        |   |   |          |             |
| 9  |                                |      |        |   |   |          |             |
| 10 |                                |      |        |   |   |          |             |
|    |                                | 50   |        |   |   |          |             |



Team Meeting Agenda "AMOS QAchat"

Date: 2023\_05\_17

| ID | Topic                | Time | Author      | Description  | Result | Decision | Responsible |
|----|----------------------|------|-------------|--|--------|----------|-------------|
| 1  | Sprint Review        | 30   | PO          | - Release Manager creates release candidate build<br>- PO walks through "awaiting review" tickets, probing SDs                                   |        |          |             |
| 2  | Sprint Release       | 5    | PO          | - PO decides release<br>- Release Manager creates release  |        |          |             |
| 3  | Sprint Retrospective | 15   | SM          | - SM reviews the impediments<br>- SM performs roll calls<br>- Everyone answers happiness index<br>- Review of Happiness index and standup emails |        |          |             |
| 4  | Sprint Planning      | 30   | PO          | - PO works through product backlog<br>- SD perform planning poker  |        |          |             |
| 5  | Definition of Done   | 5    | Tobi + Sara | agree on project specific DoD  |        |          |             |
| 6  |                      |      |             |  |        |          |             |
| 7  |                      |      |             |  |        |          |             |
| 8  |                      |      |             |  |        |          |             |
| 9  |                      |      |             |  |        |          |             |
| 10 | Open Points          | 5    | Everybody   |  |        |          |             |
|    |                      | 90   |             |  |        |          |             |

Team Meeting Agenda "AMOS QAchat"

Date: 2023\_05\_10

| ID | Topic                | Time | Author      | Description  | Result | Decision | Responsible |
|----|----------------------|------|-------------|--|--------|----------|-------------|
| 1  | Sprint Review        | 30   | PO          | - Release Manager creates release candidate build<br>- PO walks through "awaiting review" tickets, probing SDs                                   |        |          |             |
| 2  | Sprint Release       | 5    | PO          | - PO decides release<br>- Release Manager creates release  |        |          |             |
| 3  | Sprint Retrospective | 15   | SM          | - SM reviews the impediments<br>- SM performs roll calls<br>- Everyone answers happiness index<br>- Review of Happiness index and standup emails |        |          |             |
| 4  | Sprint Planning      | 30   | PO          | - PO works through product backlog<br>- SD perform planning poker  |        |          |             |
| 5  | Definition of Done   | 3    | Tobi + Sara | agree on project specific DoD  |        |          |             |
| 6  | Sprint Goal          | 2    | Tobi + Sara | agree on sprint goal   |        |          |             |
| 7  |                      |      |             |  |        |          |             |
| 8  |                      |      |             |  |        |          |             |
| 9  |                      |      |             |  |        |          |             |
| 10 | Open Points          | 5    | Everybody   |  |        |          |             |
|    |                      | 90   |             |  |        |          |             |

Team Meeting Agenda "AMOS QAchat"

Date: 2023\_05\_03

| ID | Topic                | Time | Author      | Description  | Result | Decision                                      | Responsible |
|----|----------------------|------|-------------|--|--------|---|-------------|
| 1  | Sprint Review        | 30   | PO          | - Release Manager creates release candidate build<br>- PO walks through "awaiting review" tickets, probing SDs                                   |        |   |             |
| 2  | Sprint Release       | 5    | PO          | - PO decides release<br>- Release Manager creates release  |        |   |             |
| 3  | Sprint Retrospective | 15   | SM          | - SM reviews the impediments<br>- SM performs roll calls<br>- Everyone answers happiness index<br>- Review of Happiness index and standup emails |        |   |             |
| 4  | Sprint Planning      | 30   | PO          | - PO works through product backlog<br>- SD perform planning poker  |        |   |             |
| 5  | Stand up Emails      | 2    | Tobi + Sara | please write your standup emails regularly   |        | first standup email is sent by sunday evening |             |
| 6  |                      |      |             |  |        |   |             |
| 7  |                      |      |             |  |        |   |             |
| 8  |                      |      |             |  |        |   |             |
| 9  |                      |      |             |  |        |   |             |
| 10 | Open Points          | 10   | Everybody   |  |        |   |             |
|    |                      | 92   |             |  |        |   |             |

Team Meeting Agenda "AMOS QAchat"

Date: 2023\_04\_26

| ID | Topic                  | Time | Author    | Description  | Result | Decision  | Responsible |
|----|------------------------|------|-----------|--|--------|---|-------------|
| 1  | Sprint Review          | 30   | PO        | - Release Manager creates release candidate build<br>- PO walks through "awaiting review" tickets, probing SDs                                   |        | Method 2: semantic search<br>a Google Open Source model |             |
| 2  | Sprint Release         | 5    | PO        | - PO decides release<br>- Release Manager creates release  |        | released  |             |
| 3  | Sprint Retrospective   | 15   | SM        | - SM reviews the impediments<br>- SM performs roll calls<br>- Everyone answers happiness index<br>- Review of Happiness index and standup emails |        | see imp board   |             |
| 4  | Sprint Planning        | 30   | PO        | - PO works through product backlog<br>- SD perform planning poker  |        |   |             |
| 5  | Get to know each other | 5    | Vukica    |  |        |   |             |
| 6  | Project Setup          | 5    | Tobi      | - programming language and coding guidelines<br>- tools<br>- branching and merging   |        | issue is in progress                                    |             |
| 7  |                        |      |           |  |        |   |             |
| 8  |                        |      |           |  |        |   |             |
| 9  |                        |      |           |  |        |   |             |
| 10 | Open Points            | 5    | Everybody |  |        |   |             |
|    |                        | 95   |           |  |        |   |             |

Team Meeting Agenda "AMOS QAchat"

Date: 2023\_04\_24

| ID | Topic                      | Time | Author | Description  | Result   | Decision | Responsible |
|----|----------------------------|------|--------|--|--|----------|-------------|
| 1  | getting to know each other | 5    |        | introduce new team members   |  |          |             |
| 2  | organization               | 20   |        | - access to Slack<br>- access to Confluence<br>- access to GDrive / Google Cloud | NDA is a problem, work in progress   |          |             |
| 3  | project topics             | 20   |        | talk about new advances in LLMs and project requirements                         | - documents mostly in german<br>- chatbot has no specific language requirement |          |             |
| 4  |                            |      |        |  |  |          |             |
| 5  |                            |      |        |  |  |          |             |
| 6  |                            |      |        |  |  |          |             |
| 7  |                            |      |        |  |  |          |             |
| 8  |                            |      |        |  |  |          |             |
| 9  |                            |      |        |  |  |          |             |
| 10 |                            |      |        |  |  |          |             |
|    |                            | 45   |        |  |  |          |             |

## Team Meeting Agenda "AMOS QAchat"

Date: 2023\_04\_19

| ID | Topic                                      | Time | Author       | Description   | Result | Decision | Responsible |
|----|--|------|--------------|---|--------|----------|-------------|
| 1  | Ensure that everybody has access           | 5    | Deliverables | - shared folder with planning documents<br>- Github Repo<br>- Happiness index tool  |        |          |             |
| 2  | initialize planning documents              | 10   | Deliverables | insert base data, agree on role assignments   |        |          |             |
| 3  | Agree on team contract                     | 10   | Deliverables | submit as part of planning documents  |        |          |             |
| 4  | Discussion about first project impressions | 10   | Tobi         | What are your first impressions from yesterday?<br>(good, bad, suggestions, concerns, ...)<br>What documents / workspaces do we have (from Sebastian and Prof. Riehle)? |        |          |             |
| 5  | Getting to know each other                 | 10   | Tobi         | What experiences do you have (regarding topics that might be needed in this project) ?<br>How do you work (Timeslot, Tools, ...) ?                                      |        |          |             |
| 6  | Slack                                      | 10   | Tobi         | Do we want to create our own Slack channel?   |        |          |             |
| 7  | Homework                                   | 30   | Tobi         | Go through Homework 1 tasks   |        |          |             |
| 8  | Fill in happiness index                    | 5    | Deliverables | counts as sprint 0, closes at midnight  |        |          |             |
| 9  |  |      |              |   |        |          |             |
| 10 |  |      |              |   |        |          |             |
|    |  | 90   |              |   |        |          |             |

Team Meeting Agenda "AMOS QAchat"

Date: 2023\_04\_18

| ID | Topic                      | Time | Author | Description   | Result   | Decision | Responsible |
|----|----------------------------|------|--------|---|--|----------|-------------|
| 1  | getting to know each other | 10   |        | short introduction of each person   |  |          |             |
| 2  | project introduction       | 40   |        | - go through project definition from Sebastian<br>- look at methods Sebastian already collected | Sebastian provides us the presented sildes   |          |             |
| 3  | organization               | 20   |        | - discuss access to Slack, Confluence, GDrive and processing resources                          | in progress, discuss results in next meeting, Sebastian will invite us to the Google Cloud |          |             |
| 4  |                            |      |        |   |  |          |             |
| 5  |                            |      |        |   |  |          |             |
| 6  |                            |      |        |   |  |          |             |
| 7  |                            |      |        |   |  |          |             |
| 8  |                            |      |        |   |  |          |             |
| 9  |                            |      |        |   |  |          |             |
| 10 |                            |      |        |   |  |          |             |
|    |                            | 70   |        |   |  |          |             |

Team Meeting Agenda "AMOS QAchat"

Date: tbd

| ID | Topic                | Time | Author    | Description  | Result | Decision | Responsible |
|----|----------------------|------|-----------|--|--------|----------|-------------|
| 1  | Sprint Review        | 30   | PO        | - Release Manager creates release candidate build<br>- PO walks through "awaiting review" tickets, probing SDs                                   |        |          |             |
| 2  | Sprint Release       | 5    | PO        | - PO decides release<br>- Release Manager creates release  |        |          |             |
| 3  | Sprint Retrospective | 15   | SM        | - SM reviews the impediments<br>- SM performs roll calls<br>- Everyone answers happiness index<br>- Review of Happiness index and standup emails |        |          |             |
| 4  | Sprint Planning      | 30   | PO        | - PO works through product backlog<br>- SD perform planning poker  |        |          |             |
| 5  |                      |      |           |  |        |          |             |
| 6  |                      |      |           |  |        |          |             |
| 7  |                      |      |           |  |        |          |             |
| 8  |                      |      |           |  |        |          |             |
| 9  |                      |      |           |  |        |          |             |
| 10 | Open Points          | 10   | Everybody |  |        |          |             |
|    |                      | 90   |           |  |        |          |             |



| Role            | Tasks  |
|-----------------|--|
| Everyone        | participate in lecture<br>participate in team meeting<br>write 2 stand up emails |
| PO              | update feature board<br>update planning documents                                |
| SD              | work on issues<br>update bill of materials                                       |
| SM              | update impediments backlog   |
| Release Manager | ensure that sprint release candidate is tagged                                   |

| Role            | Tasks   |
|-----------------|---|
| PO              | create feature board screenshot<br>create planning document PDF |
| SD              | push current work<br>update assigned issues                     |
| SM              | create impediments backlog screenshot                           |
| Release Manager | tag sprint release candidate                                    |

|                             |  |                 |
|-----------------------------|--|-----------------|
| <b>Meeting Preparation</b>  | <p>ensure product backlog is ready</p> <p>coordinate with Release Manager</p>  |                 |
| <b>Sprint Review</b>        | <p>ask Release Manager to build release candidate</p> <p>walk through "Awaiting review" issues</p> <ul style="list-style-type: none"> <li>- ask SD to demo item under review</li> <li>- check fulfillment of acceptance and DoD criteria</li> <li>- move item to feature archive (add label "Real Size = Y") or move issue to product backlog</li> </ul> | Product Owner 1 |
| <b>Sprint Release</b>       | <p>decide whether release candidate should be released</p> <p>coordinate with Release Manager</p>  |                 |
| <b>Sprint Retrospective</b> | <p>SM TODOs</p> <p>answer Happiness Index</p>  | Scrum Master    |
| <b>Sprint Planning</b>      | <p>reprioritize product backlog items</p> <p>start by most important backlog item and ask SDs to estimate the story points, do until SDs have enough work</p> <p>story points = {0, 1, 2, 3, 5, 8, 13}</p>   | Product Owner 2 |
| <b>Meeting After-work</b>   | <p>update planning documents</p> <p>update feature board</p>   |                 |

**Steps to create a Github Issue:**

1. Go here: [Issues · amosproj/amos2023ss03-qachat \(github.com\)](https://github.com/amosproj/amos2023ss03-qachat/issues)
2. click "New issue"
3. select correct template
4. write a title and description that follow the INVEST criteria Independent, Negotiable, Valuable, Estimatable, Small, Testable
5. select the correct project "amos2023ss03-feature-board"
6. select the correct milestone (optional) "sprint-{XY}"
7. add correct labels "Est. size = X" and issue type
8. add Assignees (optional)
9. click "Submit new issue"
10. go here: [amos2023ss03-feature-board \(github.com\)](https://github.com/amos2023ss03-feature-board)
11. move issue to Product Backlog
12. open issue and set corresponding priority

|   |                          |
|---|--------------------------|
|   |                          |
| Average Story Points per Sprint:                    | 25                       |
| Current Sprint:                                     | 8                        |
| Available Sprints:                                  | 5                        |
| <b>Available Story Points:</b>                      | <b>125</b>               |
|   |                          |
|   |                          |
|   |                          |
| <b>Homework</b>                                     | <b>Rough Estimations</b> |
| Sprint 12   | 20                       |
| Sprint 13   | 10                       |
|   |                          |
|   |                          |
| <b>Story Points available for Product:</b>          | <b>95</b>                |
|   |                          |
|   |                          |
| <b>Open Issues</b>                                  | <b>Rough Estimations</b> |
| setup everything in the Cloud and make is usable    | 15                       |
| work with real data (testing, add to database, ...) | 20                       |
| testing   | 15                       |
| bugfixes  | 20                       |
| documentation                                       | 5                        |
| beautification                                      | 10                       |
| buffer task 1                                       | 5                        |
| buffer task 2                                       | 5                        |
|   |                          |
|   |                          |
| <b>Story Point Account at the END:</b>              | <b>0</b>                 |