Working Report

The group used different applications for communication and group work. For communication with the supervisors, Mattermost and Big Blue Button were used for chat and video calls. For the internal communication, WhatsApp and Microsoft Teams were used. Furthermore, different Microsoft Office 365 applications were used for collaborative work, like Microsoft Word and Microsoft Powerpoint. Additionally, Miro Whiteboards were used for brainstorming, collaborative idea collection and working on the common understanding of the system. For collaborative work on the LaTeX-toolpaper, Overleaf was used.
Code and documentation were stored in Gitlab repositories and in the Gitlab Wiki.

Name	**What were your tasks within the research practical?** (*Please give an overview of your tasks with a few bullet points)*	**How many hours did you work on the research practical?** *(Please give an approximate number of hours you spent on the tasks you listed in the first column)*	**How was the work within the group?** *(Please list at least two positive and two negative points)*
Abhinav Ralhan	1. Wiki a. Documenting weekly reports for initial weeks. b. Technical Documents for Data Synthesizer 2. Issues a. Managing and tracking issues for Data Synthesizer component. 3. Research a. Data storage options b. Data synthesis methods and applications c. Medical health data and nominal vital value ranges 4. Implementation a. Analysis on dataset to find appropriate label thresholds. b. Data synthesizer core logic c. Services: Docker containers with FastApi for Data	1. Wiki a. 10 h 2. Issues a. 10 h 3. Research a. 10 h b. 20 h c. 10 h 4. Implementation a. 40 h b. 80 h c. 80 h d. 40 h	+ Easy communication with teammates + Collaboration was efficient - Tracking of tasks was unclear. Issues not maintained properly by component owners

	synthesizer and Machine Learning d. Endpoints for Data synthesizer and Machine Learning		
Bhargavi Kannan	1. Did Initial Requirements 2. Documented meeting notes for some of the meetings and organized some of the initial meetings before we had a project manager. 3. Researched for Data synthesizer and the database part 4. Documented the data synthesizer and the flow of it in the wiki 5. Documented the storage part 6. Collaborated with Abhinav for implementation part for data synthesizer part and the storage	1. 30 h 2. 35 h 3. 45 h 4. 50 h 5. 50 h 6. 90 h	+ Team members were friendly and easy to work with + Communication was open and everyone helped when someone get stuck + Project management was efficient and helped us to achieve the results at the proper time - Initial days were bit unorganized as we didn't have a project manager - We couldn't find proper meeting slots at the beginning (but it got better)
Bini Mariam John	1. Initially, developed an angular web application with a Node js server, taking data from Mongo db and connecting to the front end, and showing data as bar graphs using the chart.js 2. Developed Navigation between tabs and sidebar in the application along with design.	1. 30 h 2. 25 h 3. 55 h 4. 100 h 5. 80 h 6. 20 h	+ Weekly meetings were helpful for the effective communication with teammates. + Helpful for gaining more knowledge in an application level.

	3. Connected angular application with dynamic data from APIs (visualize with dynamic data connecting it to middleware). Added more interactive and visually appealing visualizations to the application 4. JSON data from the APIs(camel) was used and visualized in the front end using a line chart to display the health data of the user with various functionalities. 5. Added a table in UI with pagination with data from API, did functionalities to edit and update health status manually, developed date filter for the chart, etc 6. Added buttons that query and retrieve data for a particular amount of time. ex: week, month, etc		- Faced some issues at first, due to lack of information and understanding. - The tasks were not properly tracked.
Emilian Cikalleshi	1. Gitlab presentation 2. Research on Dataspace Connectors 3. Participating in the Requirements Collection and User Stories 4. Research on Apache Camel and help to establish Webframework endpoints to connect to Camel 5. Webframework containerization	1. 20 h 2. 40 h 3. 30 h 4. 40 h 5. 60 h 6. 60 h 7. 40 h	+ Teammates were generally quite collaborative + Meeting with the supervisors every week got us helpful feedback - The weekly meeting were mostly online but the discussions in person

	6. Nginx configuration to enable all three edge contributors run simultaneously in the browser 7. Help with the angular web application development		seemed more productive to me - Since we were many people in the group, deciding a time for the meeting was not easy
Fabian Maxeiner	1. Research on Dataspace Connectors 2. Creating models and diagrams a. Initial Idea Models b. Sequence diagrams for final presentation 3. Requirement collection a. Worked on User Stories b. Worked on System Requirements c. Linked System Requirements and User Stories 4. Wiki Work a. Issue creation/task organization b. Wiki structuring c. General Wiki work (creation, updating, …) 5. Management (organization, leading meetings) a. Leading the internal meetings and supervisor meetings (starting 3. Week of January)	1. 40 h 2. 40 h a. 34 h b. 6 h 3. 55 h a. 8 h b. 40 h c. 7 h 4. 54 h a. 18 h b. 16 h c. 20 h 5. 106 h a. 60 h b. 10 h c. 36 h	+ Team members were willing to help when asked + Team communication was always friendly - Finding internal meeting slots wasn't always easy (especially in the first weeks) - Internal meetings didn't provide much discussion in the beginning (since there wasn't someone leading the topics) - Communication across groups working on different tasks wasn't always ideal (mostly in the beginning, improved over time)

	b. Meeting preparation (e.g. for presence meetings to clarify system functionality) c. Presentation preparation (intermediate/final – slides, demo)		
Fabian Ring	1. Dataspace Connector a. Establish connection between different connectors b. Make all necessary changes to have 3 Edge Contributor and 1 Training Coordinator 2. Created Docker Compose Files to run all system components 3. Middleware - Apache Camel a. Initial research and evaluation b. Created all necessary routes to connect all system components c. Helped to establish the necessary endpoints in the different components 4. Made functionality tests of system components in system view 5. Provided debugging help 6. Wiki	1. 80 h a. 60 h b. 20 h 2. 20 h 3. 110 h a. 20 h b. 70 h c. 20 h 4. 30 h 5. 35 h 6. 35 h a. 5 h b. 5 h c. 15 h d. 10 h	+ It was evident that everyone was interested in achieving a good result + The work atmosphere in the team was good - At the beginning of the project the organisation was not good, because we had no Project manager - Internal meetings where not easy to schedule an often not everyone could attend them

	a. Created and maintained wiki home page b. Added all submodules to the main repository c. Technical Documents for Apache Camel d. Technical Documentation		
Hisham Parveez	1. Research on Dataspace Connectors a. Creating a valid data provider. b. Reseach in communication of different dataspace connectors. c. Documentation of the api calls used by the connector in wiki. 2. Research in Data Aggregation(during extended period) a. Research on different data aggregation methods. b. Implemented test code to check ML model behaviour in dataspace connector. 3. Implementation of Training Coordinator	1. – a. 40 h b. 40 h c. 8 h 2. – a. 8 h b. 5 h 3. – a. 90 h b. 10 h c. 4 h d. 8 h 4. – a. 30 h b. 10 h 5. – a. 10 h b. 30 h	+ The internal team communication regarding ideas, plans and topic discussions were good. - Initial communication was not satisfactory. I believe the initial meetings related to requirements and system design should have been in-person rather online. - The role of the project manager should have been introduced early in the project.

	a. Implemented entire functionality making sure of code reusability. b. Bug fixes based on the feedback. c. Documentation of training coordinator in wiki. d. UML class diagram of the coordinator in wiki. 4. Implementation of testing edge-node component a. Testing component which simulates the edge-node behaviour on different connectors for intermediate presentation. b. Testing of training coordinator with the edge-node component to find bugs. 5. Implementation of Aggregation-endpoint(component not used, present in repo) a. Research on fastAPI framework to make aggregated parameters available at an end-point. b. Implemented the component to work in a docker environment.		

Resmin Hossain	1. Research on machine learning algorithms to find the best suit for our project
	2. Research on FastAPI web framework to create endpoint for machine learning model
	3. Record as well as documentation of the meeting minutes of almost every meeting from January
	4. Documentation
	  a. total implementation of machine learning section
	  b. requirement elicitation for ML part
	5. Managing issues regarding machine learning section
	6. Technical implementation of the whole machine learning model along with updating the model when necessary
	7. Implementation of the end points for the machine learning model with the help of Abhinav Raihan
		1. 45 h
		2. 40 h
		3. 35 h
		4. 33 h
		  a. 20 h
		  b. 13 h
		5. 8 h
		6. 70 h
		7. 50 h
			+ Understanding as well as cooperation within the group was praiseworthy. Group members were ready to assist other members in time of necessity. For example, I was stuck with the implementation of end points due to my machine's weakness and Abhinav helped me out with creating all the end points.
			+ Our team lead played a vital role to keep the team together and running. When we found out that we are not quite structured with the requirement elicitation as well as documentation, he made sure we attend some face to face meeting to get back on track. After these meetings we could visualize our goals clearly and could work accordingly to reach them.
			+ Lastly, our supervisors were compassionate as well as supportive throughout the journey. They set a weekly

			meeting with us and discussed each and every tiny issue to make us clear on how to keep on track. - As none of us was experienced to work in such a huge project, at first we were at a loss. We failed to start professionally from requirement elicitation and then dive into implementation and that is why in my opinion we noticed that we were falling behind of time.
Varnana Vijay	1. Did initial phase of requirement collection and documentation. 2. Documented meeting notes 3. Initial documentation for wiki in web framework. 4. Worked on the web application using angular. a. Initial learning b. Made a seperate component to implement the additional functionalities of data exchange tab and devmode tab.	1. 30 h 2. 10 h 3. 20 h 4. 240 h a. 100 h b. 30 h c. 20 h d. 20 h e. 20 h f. 10 h g. 10 h h. 30 h	+ Team members were ready to join the web interface team while i was struggling to implement the web sockets(which was later dropped from the project). + The weekly meeting with supervisors seemed very productive. - It took more than usual time to get into the tasks and start implementing.

	c. Created a new service to integrate API´s and injected the service dependency to the component to use it as a singleton. d. The JSON data coming through the API (middleware Camel) was displayed. e. Errors were handled. In the dev mode hyperparameters data were converted to array and displayed, buttons were implemented to trigger data synthesizer and start ML model. f. The buttons can show loading (using loaders) and success message if the click is successful. g. In data exchange page all the agreements made were also displayed.		