User Stories

Complete: The user stories completely cover the capabilities required by the client.

Consistency: The user stories are consistent with the client's understanding of the problem and with other artefacts.

Justification: The user stories include justification ("so that") IF appropriate.

Priorities: User stories are well prioritized. The priorities can be traced back to the client, and the choice of prioritization mechanism has been justified by the students.

Presentation: The user stories document is clearly laid out. The user stories are well-written, and they are unambiguous. They contain no typos or spelling errors. [excellent deliverable. Completely aligned with the criteria for this sprint. Students do not need much work to make the deliverable even better. MINOR adjustments can be performed]

Epic ID	Epic	User Story ID	As	I want to	So that	Size Estimation	MoSCow Priority	Justification
E1	Registering	E 1.1	an organization user	register an account	I can get an account that belongs to my organization.	Small	Could have	*Priority:* This user story enables users to create an account in FHIR Studio. However, this feature is not important to the core function and is for users who do not have a Validitron account or for those who want to use FHIR Studio exclusively. Since FHIR Studio is part of Validitron Sandbox, users who already have a Validitron account do not need to use this feature. Therefore, it should have low priority. *Size:* This user story is easy to implement since it is a common feature found on most websites and does not involve any complex processes. It simply requires storing the user's registered account in the database system and making the interface based on the client's requirements.
		E 1.2	an organization user	have a password	I can log in to my account with my password, and I can reset it when I need.	Small	Could have	*Priority:* This user story is not a core feature but relates to security in the user account. If the development team wants to implement the registration feature, then passwords will be required. Therefore, it should have low priority. *Size:* This user story should not take too much time to implement since it is a common feature for most websites. The front end will provide an input field for the user, and the back end will store the password in the database system with the user's account.
		E 1.3	an organization user	have my password confirmation (like repeat password when registering)	I can verify my entered password to ensure it is right by entering it twice.	Small	Could have	*Priority:* This user story is to assist users in ensuring that the password they register meets their expectations and is entered correctly. Although not a core feature, it would be nice to have when users are creating an account. Therefore, it should have low priority. *Size:* We calculate the time estimate of this user story as 0.25 + 4*0.25 + 0.5) /6=0.3 days. This user story is easy to implement since it only requires verifying the two input passwords in the front end.
E2	Sign in and Sign out	E 2.1	an organization user	sign in	I can use all the functionalities of FHIR Studio.	Small	Could have	*Priority:* This user story is the sign-in feature. It is not necessary to have but it enables users to access all the data they generate on their personal repository after signing in. This feature helps protect the data from unauthorized access by other people. Therefore, it should have low priority. *Size:* This user story should not take too much time for the development team since it is not the core feature. It is a standard function on websites to validate account names and passwords in the database.
		E 2.2	an organization user	sign out	I can switch to another account on the same device / protect my data.	Small	Could have	*Priority:* This user story is the sign-out feature. It is not the core feature, but it is good to have this user story to allow users to log out of their accounts when they are not using it, providing additional protection to their data. Therefore, it should have low priority. *Size:* This user story should require minimal development time, as it simply closes access in the back end to the user's account after they sign out.
		E 2.3	an organization user	reset password	I can reset my password when I forget it.	Small	Could have	*Priority:* This use story is not important since it is not the core feature, but it is good to have when the development team include the sign-in sign-out feature. Users may forget their passwords and need a way to reset them. Therefore, it should have low priority. *Size:* Implementing this user story should only require a minimal amount of time since it involves only changing the password that is stored in the database.

E3	Settings	E 3.1	a user	view and edit account information	I can update my information anytime I want.	Small	Could have	*Priority:* This user story enables users to view and edit the account. However, this feature is base on the account function which has a low priority. Therefore, it should also have low priority. *Size:* This user story is easy to implement since it is a common feature found on most websites and does not involve any complex processes. It simply requires storing the user's registered account in the database system and making the interface based on the client's requirements.
		E 3.2	a user	receive notifications, requests to share data related to your activities on FHIR platform.	I can view the information notification method and adjust it to the way I want.	Small	Could have	*Priority:* This user story enables users to view and edit way of notification, so that they can receive the certain notifications they want. However, this is not the core function of FHIR studio so it should have low priority. *Size:* This user story is an easy feature that can be simply implemented by adjusting the approval of data notification according to the way users choose. Therefore, its size should be small.
E4	Data Management	E 4.1	a user	recover the data setting	I can reuse my previous setting if I accidentally delete it.	Small	Should have	*Priority:* This user story is not a core feature, but it is important to have. It is the client's advice to find useful data settings that may have been accidentally deleted, reducing the risk of significant data loss. Therefore, it should have medium priority. *Size:* Implementing this user story should be quick and straightforward. It involves pulling the data set back to the input field from the database when the user press recover. Also, it should not take much time to create a recovery button in the front end.
		E 4.2	a user	save my data setting	I can see my data settings by looking at the data history.	Small	Should have	*Priority:* This user story is important to include as it is a requirement from the client. Users need to be able to save their important data settings so that they can generate useful datasets by using the saved settings instead of setting them up for each time. Therefore, it should have medium priority. *Size:* It should not take too much time as it involves saving the data settings to the dataset and creating a save button in the front end.
		E 4.3	a user	Share the generated data	My team members can work with the shared data from the data repository.	Medium	Could have	*Priority:* This user story was brainstormed by the team based on client discussions. It is necessary to have so that the user is able to share their generated data with others since the data is not always for personal use; it may need to be presented. It is not the core feature and not required by the client, so we put it as a low priority. *Size:* It will take some time to make a connection with other accounts, and third-party APIs will need to be used if the user wants to share the data outside of the FHIR Studio. And, multiple ways of data sharing may need to be considered.
		E 4.4	a user	View the overall data in the dashboard	I can navigate my data and can access my data easily	Medium	Could have	*Priority:* This user story allows the user to have an overview of the data they generated. It is not necessary for any core functionalities, but it is good to include it for user-friendly purposes. Therefore, it is a low priority. *Size:* Displaying the dataset in a proper format will take some time, especially when the development team is not familiar with data alignment. It will also take some time to decide which data should be displayed to provide the user with a clear overview of the generated data.
		E 4.5	a user	have a unique code for my configuration when I press share	My team member or external user can directly generate the data based on my configuration.	Small	Could have	*Priority:* From this user story, users can obtain unique codes from public communities and generate correct data. As more people share in the future, the variety of data will become more complete, so that everyone will rarely need to create their own settings for data generation. Although this is not a primary requirement, having it in the future will bring greater benefits to users and increase the usability of FHIR Studio. *Size:* It should not take much time since it simply generates the unique code from the back end and displays this code on the interface.
		E 4.6	a user	extract the simulated data	I can do some analysis to support my decision.	Small	Should have	*Priority:* While this user story is not critical to the core functionality of the software, it is an important aspect of the user experience and can enhance the overall value of the software. The ability to extract the simulated data for analysis provides users with a more comprehensive understanding of the simulated data and enables them to make more informed decisions. *Size:* The user story involves a relatively simple task of extracting the simulated data. This requires knowledge of data extraction techniques and tools. The combination of low complexity and risk, along with relatively small effort, results in a size estimation of "Small" for this user story.
E5	Simulated Data Generation	E 5.1	a user	generate simulated clinical data	I can use the data to set up test cases, validate products, test research output, test data processes pipeline, and demonstrate products.	Large	Must have	*Priority:* This user story is the core feature of FHIR studio. Users should be able to generate data based on FHIR standards from SandBox and use the data to develop or test their own products. Therefore, it should have a high priority. *Size:* It will take a long time because this function requires feedback on simulated data corresponding to the user's configuration. Hence, a good search algorithm needs to be designed to search and match backend data.
		E 5.2	a user	configure the generated data	I can obtain the data with the desired feature.	Medium	Must have	*Priority:* This is a unique feature of FHIR studio. Users should be able to freely configure parameters to generate simulation data to match their own development projects. Therefore, it should have a high priority. *Size:* It won't take too long because it's just a sub-function of generating simulated data. Considering the need to apply user configuration to search algorithms and sometimes remove some non-configurable data, the size of this user story will be medium.
		E 5.3	a user	staged my data	I can generate some simple visualization of the dataset.	Small	Must have	*Priority:* This user story shows the flexibility of FHIR studio. After generating the simulated data, users need to have some simple visualization and overview of the data. Therefore, it should have a high priority. *Size:* This user story only provides a UI interface for users to adjust parameters and store the results in the back end. Therefore, it will not cost too much time.

		E 5.4	a user	push the simulated data into the current production server	I can validate my product directly.	Small	Must have	*Priority:* The user story is critical to the core functionality of the software. Pushing simulated data into the production server allows for direct validation of the product. This is important because it enables users to test the product in a real-world environment, allowing for any issues or errors to be identified and resolved quickly. The ability to push simulated data into the production server is critical to the success of the software, and as such, it is a "Must Have" priority. *Size:* While there may be some technical challenges associated with this process, it is generally a routine task for software developers and IT professionals. As such, we estimate that it can be completed in a relatively short amount of time, approximately 0.9 days.
		E 5.5	a marketing lead	create data for a product demo	I can promote products more effectively and targeted.	Medium	Could have	*Priority:* The marketing lead is not considered the primary user of the FHIR Studio. Many advanced data editing tools could be an alternative solution for the marketing lead to obtain the data for the demo. But without using the FHIR Studio, the FHIR data generation and modification will be very technical and complex. Therefore, the priority for the marketing lead to creating data is a could have. *Size:* The developing team could use the same backend logic for data simulation. Only the front end needs to generate a UI for marketing leads to customise the desired data for the demo.
		E 5.6	a developer	set up my test cases	I can test data for different purposes.	Small	Should have	*Priority:* By setting up test cases for different data scenarios, users can verify that the simulated data is accurate and reliable, and ensure that the software meets their needs. This user story is a "Should Have" priority as it provides important functionality to users and enhances the overall value of the software, but is not critical to its core functionality. *Size:* The user story involves a relatively simple task of setting up test cases to test data for different purposes. This requires knowledge of testing methodologies and tools. The combination of low complexity and risk, along with relatively small effort, results in a size estimation of "Small" for this user story.
E6	SandBox Integration	E 6.1	a Validitron Sandbox developer	embed the FHIR Studio into Validitron Sandbox	I can have FHIR Studio in our environment for users to use	Small	Must have	*Priority:* The development team must make sure the FHIR Studio can embed into the Validitron Sandbox as the FHIR Studio will be part of the sandbox. This user story will have a high priority. *Size:* This user story will not take a lot of time since it does not require any additional implementation. It needs to ensure that the development team need to use the same implementation techniques as the Validitron Sandbox during implementation.
		E 6.2	a Vliditron Sandbox developer	have all the interfaces I need in the integration	I can integrate two systems easily and seamlessly.	Small	Must have	*Priority:* This user story is the key goal for completing all the required interfaces so that the Validitron team can integrate the two systems easily. It is an important feature, so it should have a high priority. *Size:* This user story should take some time to create interfaces that are required by the Validation team.
		E 6.3	a Validitron Sandbox developer	manage the FHIR Studio and keep it running	I can ensure the availability of the FHIR Studio	Small	Must have	*Priority:* This user story is an important feature since the Validitron team needs to be able to improve and manage the FHIR Studio in the future to make sure the FHIR standard is up-to-date. It is necessary to give it a high priority. *Size:* This user story should not take some time; it needs to add some features in the code during the implementation to make sure the program is extendable and manageable.
E7	Data Visualization	E 7.1	a user	visualize the simulated data	I can obtain a more intuitive understanding of the simulated dataset.	Medium	Must have	*Priority:* This user story is the core feature of the FHIR Studio and should be given high priority. The user needs to be able to view the generated data on a graph that can provide users with a better understanding of the dataset they have generated. *Size:* The implementation may require some time and effort, including giving some type of graphs for a user to choose, from and ensuring that the graphs are properly aligned with the data.
		E 7.2	a user	have simulated data based on the trend line I draw	I can obtain the desired data set easily.	Medium	Must have	*Priority:* This user story is a core feature of the FHIR Studio. Having the ability to generate simulated data based on a trend line is an important feature that can save time, provide flexibility, and increase accuracy and accessibility for users. It is necessary to give it a high priority. *Size:* The user story involves a moderately complex task of generating simulated data based on a trend line. The effort required to implement this feature is moderate as it involves developing an algorithm to generate simulated data and integrating it with the existing software. The risk associated with this feature is relatively low as it does not involve any major changes to the existing software architecture or functionality.
E8	Organization management	E 8.1	an organization user	view and manage organization	I can view and manage users under my organization	Small	Could have	*Priority:* This user story is not a core feature of the FHIR Studio. It is just a function for the organization users and offer a way to manage users under their organization. Therefore, it should have a low priority. *Size:* The implementation of this user story is to give the users authority to edit the users information under their organization, and mainly achieved through database access operations. This is the most fundamental operation in development so its size estimation should be small.
		E 8.2	an organization user	delete the users under my organization	I can delete a person's account when they leave the organization	Small	Could have	*Priority:* This user story is only for organization users who need to manage the accounts under their organization. It offers a way to remove resigned accounts to avoid unnecessary occupation of account space. However, this feature is not essential, so it should have a low priority. *Size:* The implementation of this user story is to give the users authority to edit the users information under their organization, and mainly achieved through database delete operations. This is the most fundamental operation in development so its size estimation should be small.

E9	Product Validation	E 9.1	a product owner	use simulated data to validate my product	I can find out any business-level flaw in my product.	Small	Could have	*Priority:* This user story is not the core feature. It is good to have so that the product owner is able to use the FHIR Studio for their goal since the product owner is part of our stakeholders. This priority should mark as low. *Size:* It will take some time to implement since the development team should add the new feature in the front end at simulate part.
		E 9.2	a researcher	use simulated data to test my data analysis pipeline	I can identify and address errors or issues and optimize the pipeline for improved efficiency and effectiveness.	Small	Could have	*Priority:* The researcher is not considered the primary user of the FHIR Studio. Many other data analysis professionals or tools could be an alternative solution to validate their data analysis pipeline. So researchers may have less initiative to use the FHIR Studio. *Size:* The developing team could use the same backend logic for data simulation. Only the front end needs to generate a UI for the researcher to customise the data. But considering the researcher's academic background, the UI could be designed for the user with sufficient knowledge, so the UI could be developed easier as well.
		E 9.3	a researcher	use simulated data to test my research output	I can improve my research results and provide reliable support for my research.	Small	Could have	*Priority:* The user story is a desirable feature, but not essential for the core functionality of the software. Being able to use simulated data to test research output is an important aspect of scientific research. By using simulated data, researchers can verify the accuracy and reliability of their research methods and conclusions. This can help to improve the quality of their research and increase the confidence that others have in their findings. However, it is not critical to the core functionality of the software. *Size:* The user story involves a relatively straightforward task of using simulated data to test research output. This requires knowledge of the specific research field and testing methods. The combination of low complexity and risk, along with a relatively small effort, results in a size estimation of "Small" for this user story.