	IDunion blockchain dashboard
Online team meeting	https://fau.zoom.us/j/68046406469?pwd=dWdTVG1IQnMrZ0hUUGVXSE1udnVYdz09
Production system (if any)	
Test system (if any)	
GitHub repository	https://github.com/amosproj/amos2022ss06-idunion-blockchain-dashboard
GitHub kanban board (project)	https://github.com/amosproj/amos2022ss06-idunion-blockchain-dashboard/projects/1
Team T-shirt (white)	
Team T-shirt (black)	https://www.shirtinator.de/loadBasket/3S3YdkBrdvw
Additional materials	
Course materials	https://drive.google.com/drive/folders/0B7LJZKdwtsyMdXRtbm5ZSEtZb3M
Lecture slides	https://github.com/dirkriehle/amos-course/tree/master/Generated/Lecture%20slides
Project descriptions	https://drive.google.com/drive/folders/1syeE4vsCDiRe-dckElviinxZhlzddqdL?usp=sharing
Online lecture hall	https://fau.zoom.us/j/69353200264
Fau-box link	https://faubox.rrze.uni-erlangen.de/getlink/fi715pnEj7PPdtv2zsxgbF4x/

Last Name	First Name	GitHub User Name	Email Address
Hemanna Geethakumary	Murali Krishna	mkhg	murali.k.hemanna@fau.de
Rosenberger	Julian	julianrosenberger	julian.rosenberger@fau.de
López Caballero	David	codeDavidLopez	david.lopez.caballero@fau.de
Hoang	Pham Minh Khai	khai-pi	khai.pham.hoang@fau.de
			khaiphamhoang.pi@gmail.com (used for happyness index and standup mail, github)
Kokardekar	Gaurav	Gaurav4449	gaurav.kokardekar@fau.de
Sandrini	Anna-Maria	A-Sandrini	anna-maria.sandrini@fau.de
Ali	Muhammad	muhammadali9699	muhammad.a.ali@fau.de

Goals	Achieve the requirements defined by the industry partner = happy customer
	We want to create a space where everyone can learn from each other and where we benefit from our different strengths
Meeting norms	If anyone can not attend it shall be indicated via e-mail
	Everyone shows up at time or indicates via Signal the delay
	Camera should be turned on (at least when speaking up)
Working norms	If someone struggles with a task we support each other and give contribution to the person who helped
	The tasks to be worked on are distributed and assigned ownership
	Everyone works on the homework and informs others in standup e-mails when it's a common task
	MS Teams for tasks without feature: <a href="https://teams.microsoft.com/l/entity/com.microsoft.teamspace.tab.">https://teams.microsoft.com/l/entity/com.microsoft.teamspace.tab.</a>
	planner/_djb2_msteams_prefix_2602738921?context=%7B%22subEntityId%22%3Anull%2C%22channelId%22%3A%2219%
	3AV15KRB5BjbRtz-gz_YZplzW2uR_PR1EeDUJndPmqRNY1%40thread.tacv2%22%7D&groupId=4091629d-8600-4c86-a111-
	<u>aa2dbade99f1&amp;tenantId=b2efcef3-8496-40b8-9de8-f135982f3461</u>
Coordination norms	Every job has a designated person responsible for it
	We volunteer for common jobs
Communication norms	Communication with industry partner via e-mail
	MS Teams AND Signal used for internal team communication during the week
	The team e-mail shall be put in CC on every communication via e-mail
	We check MS Teams AND Signal at least every second day
Consideration norms	We discuss disagreement openly in both the team meetings and MS Teams
	We vote for a final resolution
Cont. improvement norms	We jointly review the happiness index in every team meeting
Rewards	We celebrate each other virtually and if we meet offline the responsible person gets a free drink of their choice
Sanctions	We apologize by bringing cookies OR if online ? coffee break and the rule violator has to entertain :p

#	Meeting Day	Uni	Comment	Product Owner	Software Developer	Release Manager	Scrum Master
1	2022-04-27	No		Anna, David	Ram, Julian, Tanvir, Soham, Khai, Murali	Anna	Gaurav Kokardekar
2	2022-05-04	No		Anna, David	Ram, Julian, Tanvir, Khai, Murali, Muhammad, Swar	Julian	not present
3	2022-05-11	Yes		Anna, David	Ram, Julian, Tanvir, Khai, Murali, Muhammad,	Murali	Gaurav Kokardekar
4	2022-05-18	No		Anna, David	Julian, Khai, Murali, Muhammad,	Julian	Gaurav Kokardekar
5	2022-05-25	Yes		Anna, David	Julian, Khai, Murali, Muhammad	Khai	Gaurav Kokardekar
6	2022-06-01			Anna, David	Julian, Khai, Murali, Muhammad	Muhammad	Gaurav Kokardekar
7	2022-06-08	Yes	Mid-term due	Anna, David	Julian, Khai, Murali, Muhammad	Murali	Gaurav Kokardekar
8	2022-06-15			Anna, David	Julian, Khai, Murali, Muhammad	Khai	Gaurav Kokardekar
9	2022-06-22			Anna, David	Julian, Khai, Murali, Muhammad	Muhammad	Gaurav Kokardekar
10	2022-06-29	Yes		Anna, David	Julian, Khai, Murali, Muhammad	Murali	Gaurav Kokardekar
11	2022-07-06			Anna, David	Julian, Khai, Murali, Muhammad	Julian	Gaurav Kokardekar
12	2022-07-13					Khai	
13	2022-07-20	Yes					
14	2022-07-27		Demo day!				
15	2022-08-03		Retrospective				

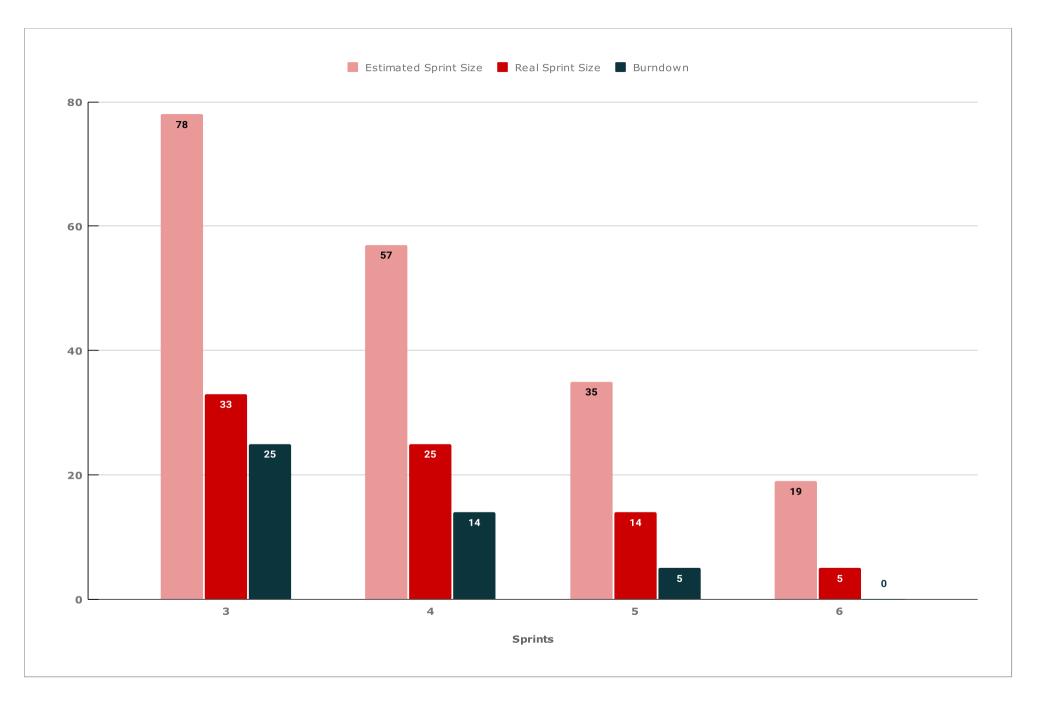
Product Vision	Project Mission
The IDunion project (see <a href="https://idunion.org/?lang=en">https://idunion.org/?lang=en</a> ) is aiming to create a decentralized identity management. With the help of the Hyperledger stack it is possible to create, issue and manage identity information in a decentralized ledger. The IDunion network connects it's participants and enables a trustworthy, secure, effective and user-friendly ecosystem. The network nodes create and store various types of data. With the help of the data the network activity and the ledger can be analzyed in order to optimize workflows, share credential information or find new business cases. Processing and displaying the data is crucial for leveraging the information value.	In the interest of our industry partner the mission is to identify data of possible interest and display it in a dashboard. By displaying the data in the dashboard it is easy and intuitive to get the impression of the network activity and ledger status. Based on the displayed information the industry partner can optimize it's businesses.  Project information (provided by tutors, industry partner):  "The goal of the project is to develop a metrics engine and a dashboard for the IDunion blockchain.  1. The (UI-less) metrics engine  1.1 Collects data from the test instances of the blockchain and computes predefined metrics (a.k.a. KPIs, keyperformance indicators)  1.2 Allows for the registration of interest in these metrics and the provision of notifications if provided metric values match a defined (boolean) query  2. The dashboard  2.1 Visualizes the metrics over time (using Grafana) Can be configured by a user to meet their needs  2.2 Supports user accounts and role definitions where Different roles get different default layouts  2.3 Can register interest in events where Events correspond to metrics engine notifications  2.4 Can display events"

Product Vision	Project Mission

Term	Definition
Distributed ledger	A distributed ledger is a database that is consensually shared and synchronized across multiple sites
Blockchain	A Blockchain is a distributed and shared digital ledger of data entities
Key performance indicator (KPI)	A Key performance indicator is an attribute of the network or Blockchain with valuable information for the business owner
Node	A node is a participant in the network contributing to the Blockchain
Hyperledger	Hyperledger is an open source effort to advance cross-industry blockchain technologies for business use
Hyperledger Indy	Hyperledger Indy provides tools, libraries, and reusable components for providing digital identities rooted on distributed ledgers
Indy Monitor	A Indy Monitor is a toolset for monitoring the node status
DID	A DID is a decentralized identifier that refers to any entity within a digital identity
DID Entity	A DID Entity is a data structure comprised of a collection of key-value pairs
DID Document	A DID Document is a JSON-LD serialization of a DID Entity
Prometeus	Prometeus is a data storage for information of the network or Blockchain
Grafana dashboard	A Grafana Dashboard is a board displaying the data of the network or Blockchain in a user friendly format
Metrics engine	A metrics engine is a program that is processing the data of the network and blockchain calculating the key performance indicators
Node-Exporter	Prometheus exporter for hardware and OS metrics, in our project we are using it to collect data from node to database

#	Theme	Goal	Feature Name	Est. Size (Feature)	Est. Size (Sprint)	Real Size (Feature)		Burn- Down
Project								
	Total			78		33		
	Total			70		00		
Sprints								
	3 Set up and showcase			21	78	8	33	25
	4 Indy Monitor			22				14
	5 Prometeus			16	35	9	14	5
	6 KPI and Home View			19	19	5	5	0
Features								
	3 Set up and showcase							
		Set up the environment and showcase Grafana						
			Register	5		5		
			Set up Hyperledger environment	2		3		
			Create Network of Hyperledger nodes Create first record for Hyperledger	8				
			Define basic architecture for the project	3				
	4 Indy Monitor							
		Develop architecture and set up Indy Monitor	Define basic architecture for the project	3		5		
			Align and define branch-strategy	2		1		
			Set up Indy Monitor	3		5		
			Define and set-up documentation	1				
			Indy monitor data transfered to prometeus.io  Create first record for Hyperledger	5 3				
			Set up Prometeus with Grafana	5				
			occup i fornocodo mur ordinalia					
	5 Prometeus							
		Get started with Prometeus data base	Manager and the distance in December 1					
			Key performance indicators in Prometeus.io  Define and set-up documentation	5		0		
			Indy monitor data transfered to prometheus.io	5		5		
			Setup Prometheus with Grafana	5		1		
			List all available data	3				
	6 KPI and Home View							
	o ita i ana nome view	Add a KPI and home view for the data						
			Refactor the fetch data script	3		2		
			Add min. 1 new KPI to the metrics engine	8				
			Design a grafana editable general "home" view List all available data	3		3		
			List all available data	3		3		
Data								
Data								
		As a user						
2	Crafana Dashbaard	I want / need a dashboard	Shawaaaa Crafana		04	_	24	40
3	Grafana Dashboard	So that i can read the data (find out basic information about the ledger)  As a developer/team member	Showcase Grafana		21	5	24	16
		I want / need an common environment						
3	Blockchain	So that all the team members are aligned and reproducable results will be possible	Set up Hyperledger environment	2	21	3	24	16

				Est. Size	Est. Size	Real Size	Real Size	Burn-
#	Theme	Goal	Feature Name	(Feature)			(Sprint)	Down
		As a team member						
		I want / need more details about the technical implementation				_		
4	Architecture	So that the features can be assigned to an system element and work easier distributed	Define basic architecture for the project	3	22	5	25	1-
		As a developer I want / need branching and merging strategy						
4	Development	So that commits and the code are organized	Align and define branch-strategy	2	22	1	25	1
		As a user	3					
		I want / need Hyperledger Indy Monitor set up						
4	Indy Monitor	So that information of the ledger can be processed further	Set up Indy Monitor	3	22	5	25	1
		As a user						
5	Prometeus	I want / need data stored in Prometeus.io So that it can be provided to Grafana	Key performance indicators in Prometeus.io	5	19	0	12	
3	Fiorneteus	As a user and team member	rey performance indicators in Frometeus.io		19	U	12	
		I want / need a project handbook sceleton						
5	Documentation	So that I can easily get an overview of the project	Define and set-up documentation	1	19	3	12	
		As a user						
		I want / need data collected with indy monitor stored in prometheus (https://prometheus.						
_		io/docs/introduction/overview/)		_		_		
5	Indy Monitor / Prometeus	So that information is in the end available for Grafana As a user	Indy monitor data transfered to prometheus.io	5	19	5	12	
		As a user I want / need data processed with Prometeus.io transmitted to Grafana						
5	Prometeus / Grafana	So that information can be displayed in a dashboard	Setup Prometheus with Grafana	5	19	1	12	
-		As a developer						
		I want / need a parameterized script						
6	Indy Monitor	So that the data can be fetched upon parameter input in command line	Refactor the fetch data script	3	17	2	16	
		As a user						
6	Indy Monitor	I want / need an overview of all available data stored in the ledger and network	List all available data	3	17	3	16	1
О	Indy Monitor	So that I can identify interesting data or gaps, respective data to be created	List all available data	3	17	3	10	

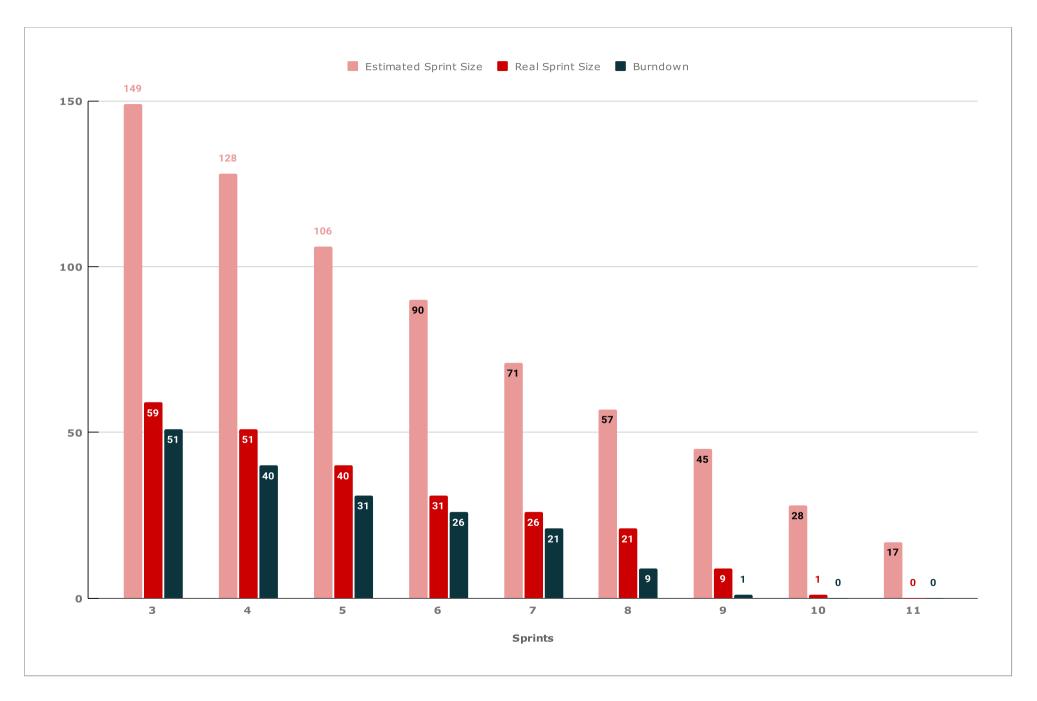


# Projec		Goal	Feature Name	Est. Size (Feature)	Est. Size (Sprint)	Real Size (Feature)	Real Size (Sprint)	Burn- Down
	Takal			140		50		
	Total			149		59		
Sprint	ts							
				Esti	mated burn-d	own R	eal burn-dowr	
	Set up and showcase			21		8	59	51
	Indy Monitor			22		11	51	40
	Prometeus KPI and Home View			16		9 5	40 31	31 26
О	KPI and Home View -			19	90	5	31	20
7	Part 2 Home view, role concept			14	71	5	26	21
8	and toolchain			12	57	12	21	ę
9	More wireframes and saving the dashboard			17	45	8	9	1
10	Alert messages and upgrade metrics engine			11	28	1	1	0
11	Industry partner feedback changes			17	17	0	0	0
Featur	res							
3	Set up and showcase							
		Set up the environment and showcase Grafana						
			Register	5		5		
			Set up Hyperledger environment	2		3		
			Create Network of Hyperledger nodes	8				
			Create first record for Hyperledger					
			Define basic architecture for the project	3				
4	Indy Monitor							
	indy Monitor	Develop architecture and set up Indy Monitor						
		porotop architecture and oct up may monitor	Define basic architecture for the project	3		5		
			Align and define branch-strategy	2		1		
			Set up Indy Monitor	3		5		
			Define and set-up documentation	1				
			Indy monitor data transfered to prometeus.io	5				
			Create first record for Hyperledger	3				
			Set up Prometeus with Grafana	5				
5	Prometeus							
		Get started with Prometeus data base						
			Key performance indicators in Prometeus.io	5		0		
			Define and set-up documentation	1		3		
			Indy monitor data transfered to prometheus.io	5		5		
			Setup Prometheus with Grafana	5		1		
			List all available data	3				
6	KPI and Home View							
		Add a KPI and home view for the data						
			Refactor the fetch data script	3		2		
			Add min. 1 new KPI to the metrics engine	8				
			Design a grafana editable general "home" view	3				
			List all available data	3		3		

#	Theme	Goal	Feature Name	Est. Size (Feature)	Est. Size (Sprint)	Real Size (Feature)	Real Size (Sprint)	Burn- Down
7	KPI and Home View -	Part 2						
		Add a KPI, display it and add home view for the data						
			Display key performance indicators in Grafana	3				
			Add min. 1 new KPI to the metrics engine	8		5		
			Implement the Wireframe in grafana as editable	_				
			"home" view	3				
8	Home view, role conce	ept and toolchain						
	, , , , , , , , , , , , , , , , , , , ,	Create wireframe, define role concept, write toolchain script, refactor storage of read transaction time						
			Create a wireframe of "home" view in Grafana	3		3		
			Define role concept in Grafana	3		3		
			Write set up script for toolchain	3		3		
			Store average read transaction time in global database	3		3		
9	More wireframes and s	saving the dashboard						
		Create wireframes, implement wireframe, save dashboard						
			Create wireframe of every defined role	3	1			
			Implement the wireframe in Grafana as editable "home" view	3		3		
			Provide test for the new average read transaction			2		
			Install alert messages for data updates	3				
			Saving the dashboard in Grafana	3		2		
			Update documentation concerning shell script	2		1		
10	Alert messages and up	porade metrics engine						
		Implement alert messages, extend the fetch validator and detect suspicious nodes						
			Establish KPI for a suspicious node	5				
			Extend fetch validator script to local json files	3		1		
			Install alert messages for data updates	3				
11	Industry partner feedba							
		Add new wireframe with industry partner feedback and engine with indy scan	Establish KPI for a suspicious node	5				
			Install alert messages for data updates	3				
			Create wireframe based on industry partner data	3				
			Implement wireframe with industry partner data	3				
			Collect with indy scan details of the three sub- ledger levels	3				
Data		As a user						
3	Grafana Dashboard	I want / need a dashboard So that i can read the data (find out basic information about the ledger)	Showcase Grafana	5	21	5	24	16
Ĭ		As a developer/team member I want / need an common environment					21	10
3	Blockchain	So that all the team members are aligned and reproducable results will be possible  As a team member	Set up Hyperledger environment	2	21	3	24	16
4	Architecture	I want / need more details about the technical implementation  So that the features can be assigned to an system element and work easier distributed	Define basic architecture for the project	3	23	3 5	26	15

#	Theme	Goal	Feature Name	Est. Size (Feature)	Est. Size (Sprint)	Real Size (Feature)	Real Size (Sprint)	Burn- Down
		As a developer						
4	Development	I want / need branching and merging strategy So that commits and the code are organized	Align and define branch-strategy	2	23	1	26	15
		As a user						
4	Indy Monitor	I want / need Hyperledger Indy Monitor set up So that information of the ledger can be processed further	Set up Indy Monitor	3	23	5	26	15
	may Monitor	As a user	Cot up may Monitor		20		20	10
		I want / need data stored in Prometeus.io						
5	Prometeus	So that it can be provided to Grafana	Key performance indicators in Prometeus.io	5	19	0	12	3
		As a user and team member						
5	Documentation	I want / need a project handbook sceleton So that I can easily get an overview of the project	Define and set-up documentation	1	19	3	12	3
0	Documentation	As a user	Define and Set-up documentation		13		12	3
		I want / need data collected with indy monitor stored in prometheus (https://prometheus.						
		io/docs/introduction/overview/)						
5	Indy Monitor / Prometeus	So that information is in the end available for Grafana	Indy monitor data transfered to prometheus.io	5	19	5	12	3
		As a user						
5	Prometeus / Grafana	I want / need data processed with Prometeus.io transmitted to Grafana So that information can be displayed in a dashboard	Setup Prometheus with Grafana	5	19	1	12	3
J	1 Torricteds / Oralana	As a developer	Octup i Tometheus with Graiana	3	13		12	3
		I want / need a parameterized script						
6	Indy Monitor	So that the data can be fetched upon parameter input in command line	Refactor the fetch data script	3	17	2	16	11
		As a user						
6	Indy Monitor	I want / need an overview of all available data stored in the ledger and network	List all available data	3	17	3	16	11
6	Indy Monitor	So that I can identify interesting data or gaps, respective data to be created  As a user	List all available data	3	17	3	16	
		I want / need a new KPI (not yet available)						
7	Indy Monitor	So that more information about the network and ledger is available	Add min. 1 new KPI to the metrics engine	8	14	5	5	9
	•	As a user	•					
		I want / need access to dashboard based on my access right						
8	Grafana	So that information is only available to the dedicated user group (e.g. Engineering department, financial	Define rele concept in Crafana	3	12	3	12	0
ŏ	Graiana	department, management, etc.) As a developer	Define role concept in Grafana	3	12	3	12	U
		I want / need a wireframe of the Grafana dashboard						
8	Grafana	So that I know which metrics to visualize and how, in order to implement it in a separate step	Create a Wireframe of "Home" view for Grafana	3	12	3	12	0
		As a developer						
		I want / need the average read transaction time to be stored in the global database instead of in every						
	Indu Manitan	single node	Store average read transaction time in global	2	40	2	40	0
8	Indy Monitor	So that the data is not redundant As a developer	database	3	12	3	12	0
		I want / need a set up script						
8	Indy Monitor	So that the toolchain is set up reproducable	Write set up script for toolchain	3	12	3	12	0
	•	As a user						
		I want / need to only see the most important information for my role when I open the Grafana dashboard	Implement the wireframe in Grafana as editable	_		_		_
9	Grafana	So that I can quickly get an overview and view more detailed information only when needed/upon request	"home" view	3	17	3	14	6
		As a developer I want / need a test for the new average read transaction time feature	Provide test for the new average read					
9	Indy Monitor	So that regression testing is available	transaction time	3	17	2	14	6
	may mornico.	As a developer	t anodotton time			_		
		I want / need to save the dashboard in Grafana						
9	Grafana	So that I do not have to import json files or rebuild the dashboard	Saving the dashboard in Grafana	3	17	2	14	6
		As a developer						
9	Documentation	I want / need instructions in the documentation to implement the shell script So that I know how to implement it	Update documentation concerning shell script	2	17	1	14	6
,	Documentation	As a developer	opadio dosamentation concerning shell script		17		14	0
		I want / need the fetch validator script extended						
10	Indy Monitor	So that I can extract data from a local json file	Extend fetch validator script to local json files	3	11	1		
10 11								

‡ Theme	Goal	Feature Name	Est. Size (Feature)	Est. Size (Sprint)	Real Size (Feature)	Real Size (Sprint)	Burn- Down
Grafana	As a user I want / need the data of a certain time frame So that the data of the time frame is displayed	Implement time frame filter for users in Grafana	3				
Prometeus	As a user I want / need to be informed if the key performance indicators are within a defined data range So that I do not need to frequently check manually the dashboard	Install alert messages for data updates	3				
Grafana	As a user I want / need the data of the identity records displayed So that a overview of the identity records is provided	Display the identity records information in the dashboard	3				
Indy Monitor / Prometeus / Grafana	As a team member and user I want / need an discription of the dynamic behaviour So that I am aware of the process order	Define basic dynamic behaviour of the system					
Indy Monitor / Prometeus / Grafana	As a user I want / need see one transaction or change in the ledger and displayed in Grafana So that information is accesible and the status reported	Show-case one transaction					
Grafana	As a user with a role I want / need a Wireframe So that the relevant information for the role is defined and designed	Create Wireframe for every defined role					
Grafana	As a user with a role I want / need to view only the data on the dashboard that is important for my role So that I can quickly see everything that I need to see	Implement the wireframes of the roles as different views in Grafana					
	As a user						
Grafana	I want / need the data displayed in Grafana over time So that I can review the network status and ledger information	Display key performance indicators in Grafana					



#	Feature Definition of Done	Sprint Release Definition of Done	Project Release Definition of Done		
	Feature has been fully implemented	Feature has been fully implemented	Feature integration testing passed		
	All acceptance criteria were met	Feature has been merged into the mainline	No build failures		
	All tests are passing	All acceptance criteria were met	All acceptance criteria were met		
	No known errors	Product owner approved features	Product owner approved features		
	Documentation updated	All tests are passing	All tests are passing		
	Bill of materials updated	Peer code review passed	Peer code review passed		
		Developers agreed to release	Developers agreed to release		
		Documentation updated	Documentation completed		
		Bill of materials updated	Bill of materials completed		
			UAT (Siemens) approved		

Type	Link / reference

\	Context	Name	Version	License	Comment
hyperledger/indy-sdk: indy-sdk (github.com)	official SDK for Hyperledger Indy, which provides a distributed- ledger-based foundation for self- sovereign identity	Indy-SDK	1.16.0	Apache License 2.0	
hyperledger/indy-node-monitor	Indy Node Monitor is a set of tools for monitoring the status of an Indy Ledger by querying the validator information of the nodes of the ledger	Indy Node-Monitor	0.4.0	Apache License 2.0	
https://github.com/grafana/grafana	Grafana as a visualization tool for querying, visualizing metrics of Hyperledger Indy Nodes	Grafana	8.5.0	GNU Affero General Public License v3.0	
https://github.com/prometheus	Database for Grafana	Prometheus	2.35.0	Apache License 2.0	
https://github.com/hyperledger/indy-vdr	A library and proxy server for interacting with Hyperledger Indy Node ledger instances	Indy-vdr	0.3.4	Apache License 2.0	
https://github.com/prometheus/node_exporter	Prometheus exporter for hardware and OS metrics	Node-Exporter	1.3.1	Apache License 2.0	
https://github.com/ivan111/vtree	This tool converts JSON strings into tree diagrams.	JSON to Tree Diagram Converter	N/A	Apache License 2.0	

Last Name	First Name	Value			
Hemanna Geethakumary	Murali Krishna	5			
Rosenberger	Julian		4.33	NOK	
López Caballero	David		4.33	NON	
Hoang	Pham Minh Khai	3	0	No size	
Ali	Muhammad	5	1	Trivial size	
Kokardekar	Gaurav	-	2	Small size	
Sandrini	Anna-Maria	-	3	Medium size	
			5	Large size	
			8	Very large size	
			13	Too large (size)	