Project Planning Phase

Project Planning Template (Product Backlog, Sprint Planning, Stories, Story points)

Date	28 October 2023
Team ID	Team-592390
Project Name	Time Series Analysis for Bitcoin Price Prediction Using Prophet
Maximum Marks	8 Marks

Product Backlog, Sprint Schedule, and Estimation (4 Marks)

Use the below template to create product backlog and sprint schedule

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1,2	Data Collection and Preparation	USN-1	As a Data Scientist, I want to access reliable historical Bitcoin price data, so I can analyze and predict trends effectively.	1	High	Surya Sathvik
Sprint-3,4	Model Development and Training	USN-2	As a Machine Learning Engineer, I want to create a baseline Prophet model for Bitcoin price prediction, so I can establish a foundation for further optimization.	2	High	Rohan Siddarth
Sprint-5,6	Evaluation and Validation	USN-3	As a Product Owner, I want to visualize model predictions against actual Bitcoin prices, so I can interpret the results and make informed decisions.	3	High	Surya Sathvik, Rohan Siddarth
Sprint-7,8	Front-End Development	USN-4	As a Front-End Developer, I want to implement interactive charts on the user interface, so	5	High	Likhith Raj Anvesh, Lohith

			users can visualize both predicted and actual Bitcoin prices dynamically.			
Sprint-9,10	Cloud Infrastructure and Deployment	USN-5	As a DevOps Engineer, I want to select an appropriate cloud service provider and set up infrastructure, so the application and model can be hosted securely and efficiently.	6	High	Likhith Raj Anvesh, Lohith
Sprint-11,12	Performance Optimization	USN-6	As a QA Engineer, I want to define comprehensive test objectives and scope, so I can ensure the application functions as intended and meets quality standards.	3	Medium	Likhith Raj Anvesh, Lohith, Sathvik
Sprint-13	Evaluation & Testing	USN-7	As a quality assurance specialist, I want to test the model's performance rigorously and evaluate its effectiveness for Bitcoin price prediction.	2	High	Rohan Siddarth

Project Tracker, Velocity & Burndown Chart: (4 Marks)

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1,2	8	1 Day	28 Oct 2023	28 Oct 2023	9	28 Oct 2023
Sprint-3,4	8	1 Day	29 Oct 2023	29 Oct 2023	8	29 Oct 2023
Sprint-5,6	8	3 Days	30 Oct 2023	01 Nov 2023	10	01 Nov 2023
Sprint-7,8,9	12	3 Days	02 Nov 2023	04 Nov 2023	11	04 Nov 2023

Sprint-10,11,12	12	2 Days	05 Nov 2023	06 Nov 2023	5	06 Nov 2023

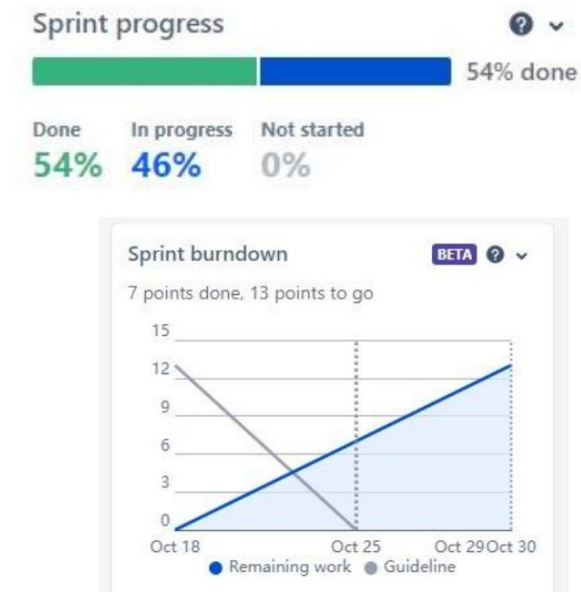
Velocity:

The team velocity of the 10-day sprint duration is:

Velocity = (9+8+10+11+5) / 5 = 43 / 5 = 8.6

Average Velocity** = Sprint duration/velocity = 10/8.6* ***= 1.16

Burndown Chart: A burn down chart is a graphical representation of work left to do versus time. It is often used in agile software development methodologies such as Scrum. However, burn down charts can be applied to any project containing measurable progress over time.



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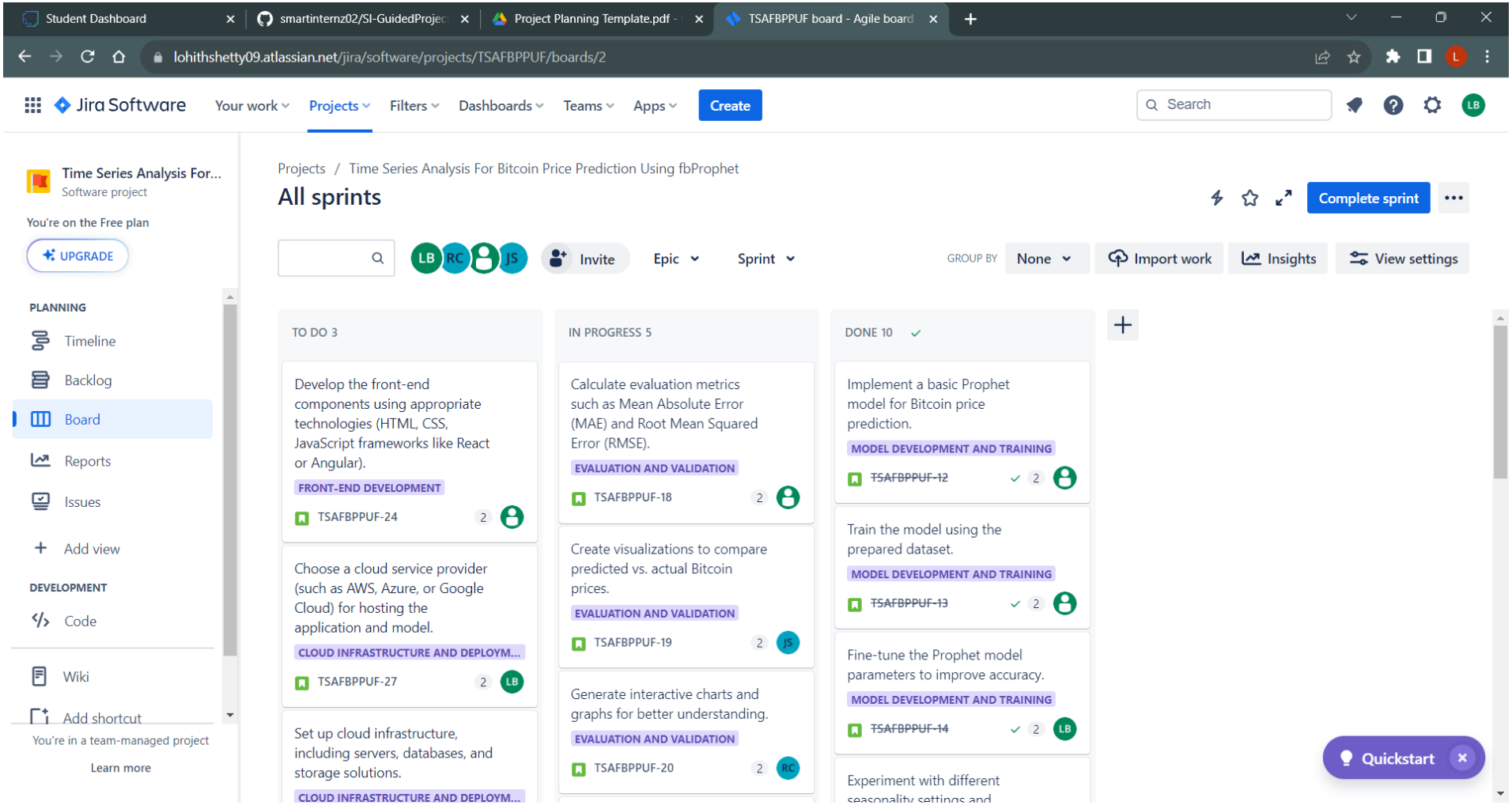
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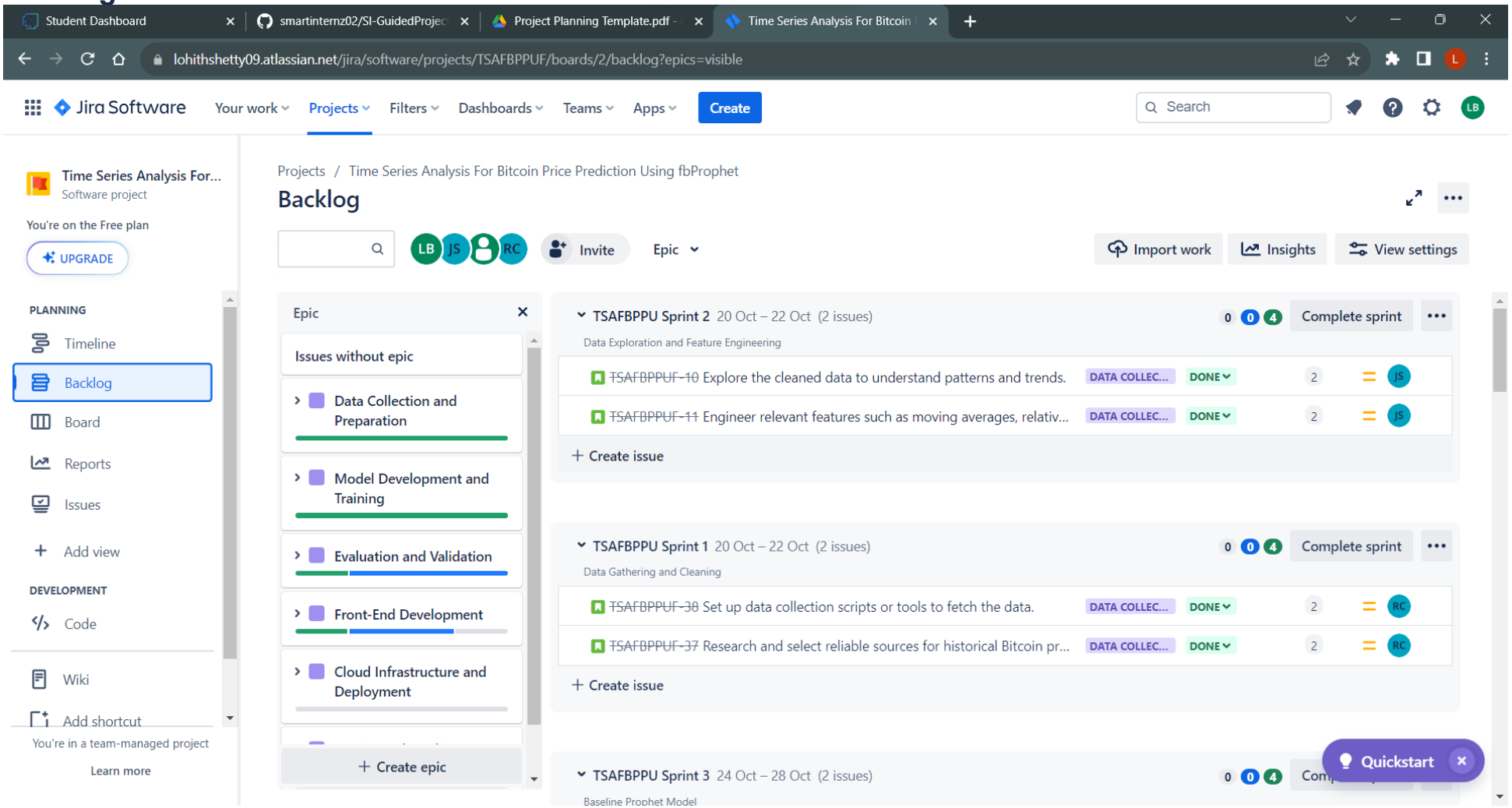
TO DO 3
Develop the front-end components using appropriate technologies (HTML, CSS, JavaScript frameworks like React or Angular).
FRONT-END DEVELOPMENT
TSAFBPPUF-24
2
Choose a cloud service provider (such as AWS, Azure, or Google Cloud) for hosting the application and model.
CLOUD INFRASTRUCTURE AND DEPLOYM...
TSAFBPPUF-27
2
Set up cloud infrastructure, including servers, databases, and storage solutions.
CLOUD INFRASTRUCTURE AND DEPLOYM...
IN PROGRESS 5
Calculate evaluation metrics such as Mean Absolute Error (MAE) and Root Mean Squared Error (RMSE).
EVALUATION AND VALIDATION
TSAFBPPUF-18
2
Create visualizations to compare predicted vs. actual Bitcoin prices.
EVALUATION AND VALIDATION
TSAFBPPUF-19
2
Generate interactive charts and graphs for better understanding.
EVALUATION AND VALIDATION
TSAFBPPUF-20
2
DONE 10
Implement a basic Prophet model for Bitcoin price prediction.
MODEL DEVELOPMENT AND TRAINING
TSAFBPPUF-12
2
Train the model using the prepared dataset.
MODEL DEVELOPMENT AND TRAINING
TSAFBPPUF-13
2
Fine-tune the Prophet model parameters to improve accuracy.
MODEL DEVELOPMENT AND TRAINING
TSAFBPPUF-14
2
Experiment with different
Quickstart

Backlog: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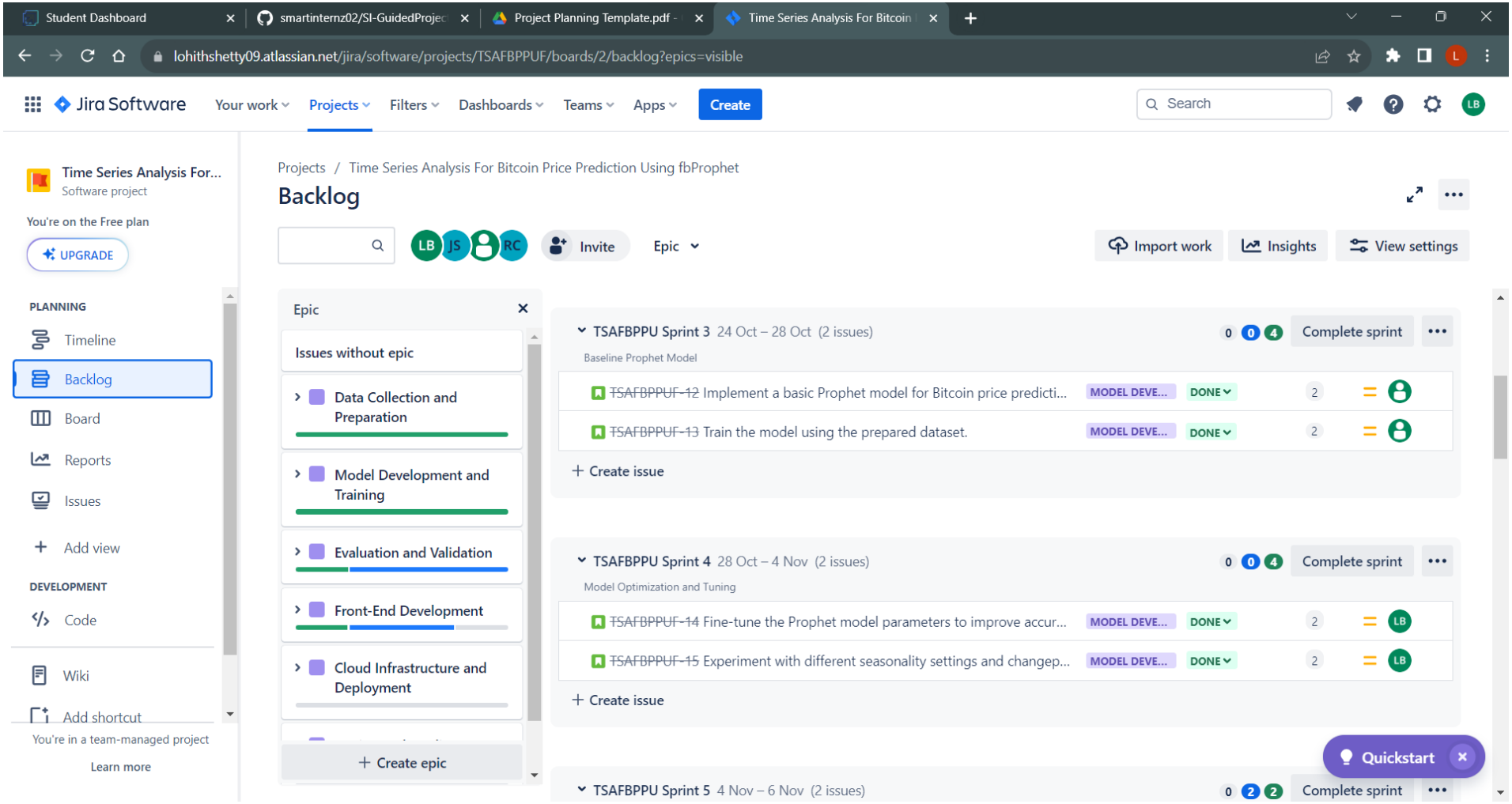
Data Collection and Preparation
Model Development and Training
Evaluation and Validation
Front-End Development
Cloud Infrastructure and Deployment
Create epic
TSAFBPPU Sprint 2 20 Oct – 22 Oct (2 issues)
Data Exploration and Feature Engineering
Complete sprint
TSAFBPPUF-10 Explore the cleaned data to understand patterns and trends.
TSAFBPPUF-11 Engineer relevant features such as moving averages, relativ...
DATA COLLEC...
DONE
Create issue
TSAFBPPU Sprint 1 20 Oct – 22 Oct (2 issues)
Data Gathering and Cleaning
TSAFBPPUF-38 Set up data collection scripts or tools to fetch the data.
TSAFBPPUF-37 Research and select reliable sources for historical Bitcoin pr...
TSAFBPPU Sprint 3 24 Oct – 28 Oct (2 issues)
Baseline Prophet Model
Quickstart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Evaluation and Validation
Front-End Development
Cloud Infrastructure and Deployment
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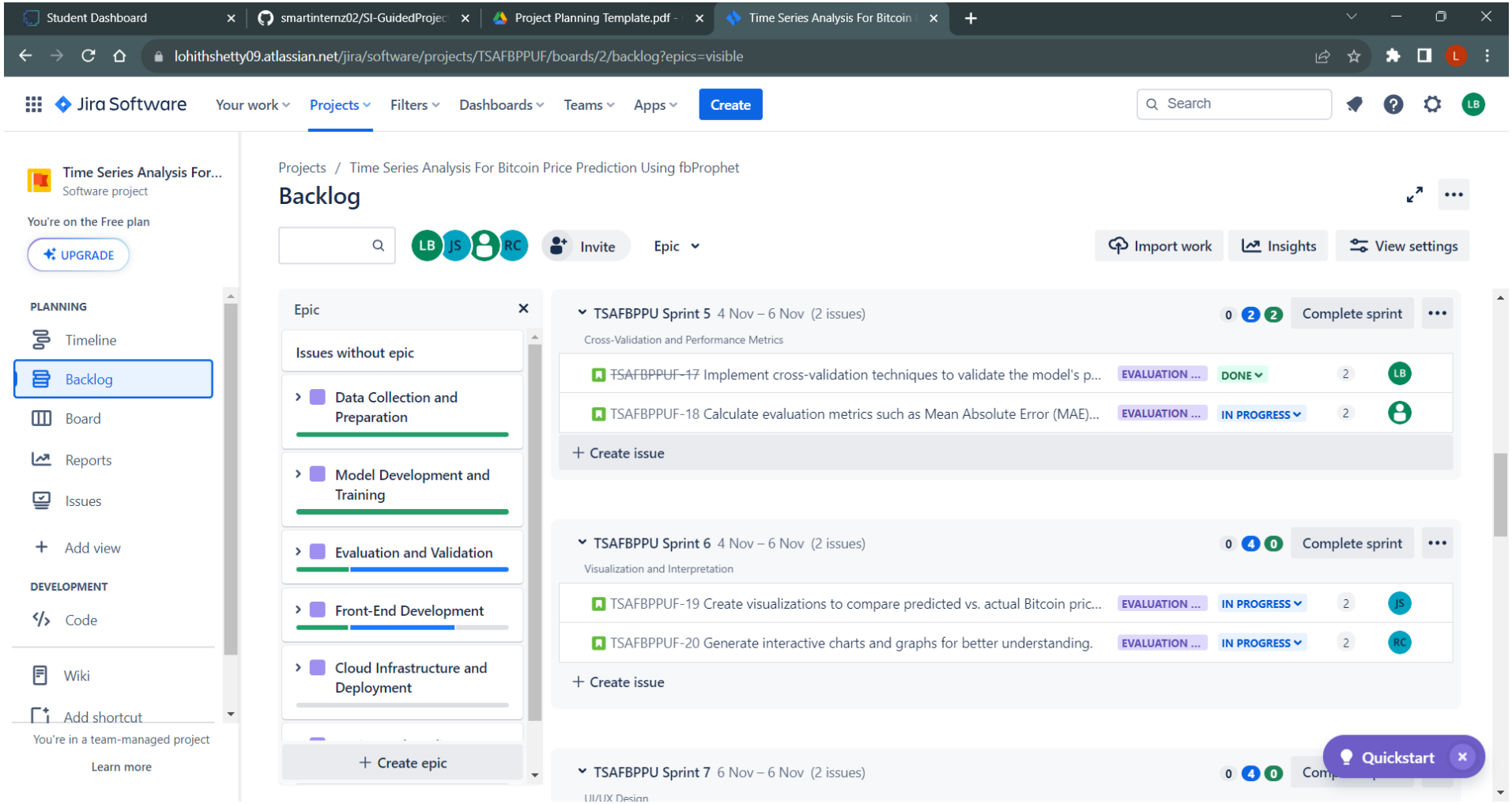
TSAFBPPU Sprint 3 24 Oct – 28 Oct (2 issues)
Baseline Prophet Model
TSAFBPPUF-12 Implement a basic Prophet model for Bitcoin price predicti...
TSAFBPPUF-13 Train the model using the prepared dataset.
MODEL DEVE...
DONE
Create issue
Complete sprint
TSAFBPPU Sprint 4 28 Oct – 4 Nov (2 issues)
Model Optimization and Tuning
TSAFBPPUF-14 Fine-tune the Prophet model parameters to improve accur...
TSAFBPPUF-15 Experiment with different seasonality settings and changep...
TSAFBPPU Sprint 5 4 Nov – 6 Nov (2 issues)
Quickstart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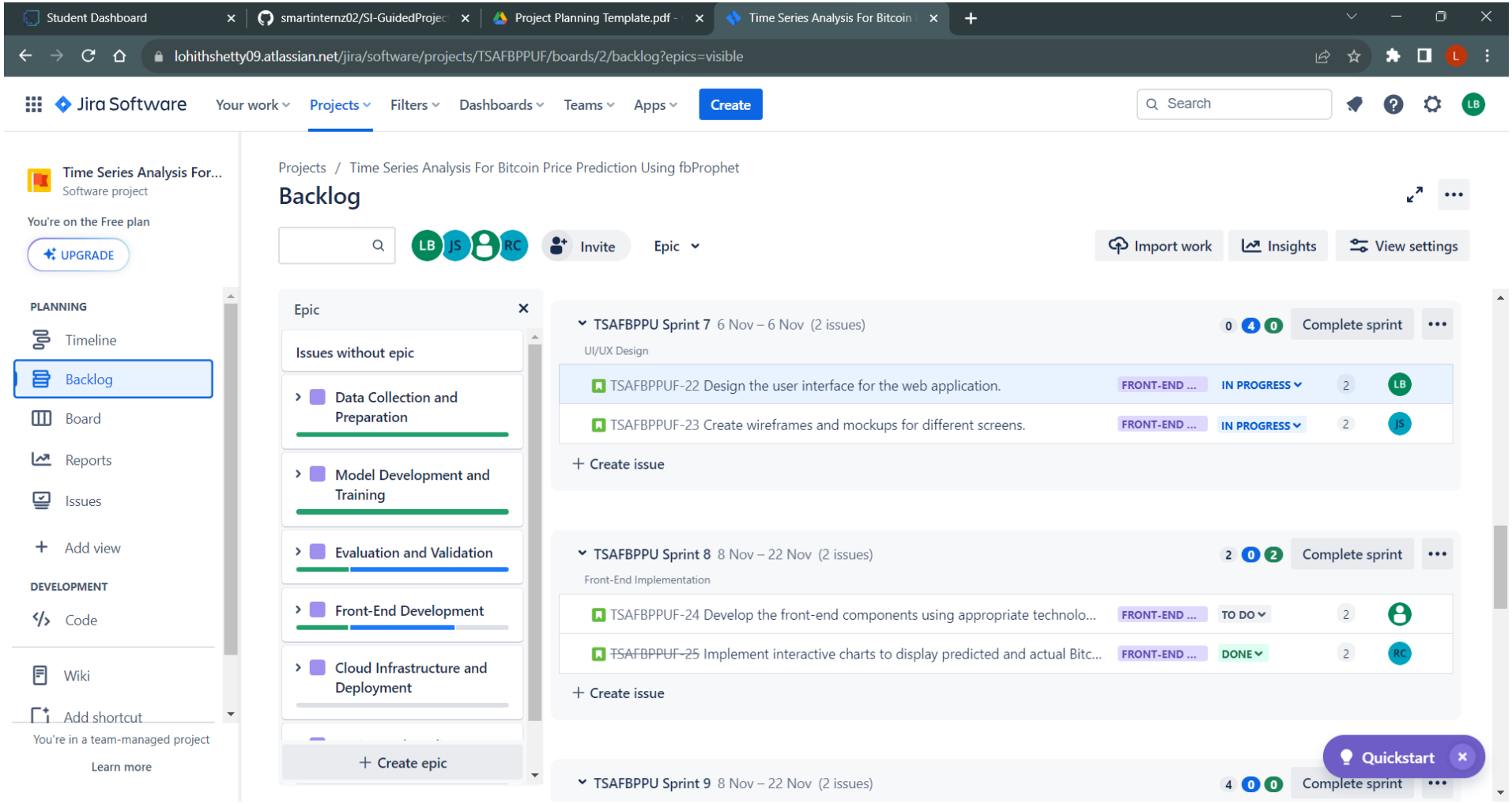
Model Development and Training
Evaluation and Validation
Front-End Development
Cloud Infrastructure and Deployment
Create epic
TSAFBPPU Sprint 5 4 Nov – 6 Nov (2 issues)
Complete sprint
Cross-Validation and Performance Metrics
TSAFBPPUF-17 Implement cross-validation techniques to validate the model's p...
EVALUATION ...
DONE
TSAFBPPUF-18 Calculate evaluation metrics such as Mean Absolute Error (MAE)...
IN PROGRESS
Create issue
TSAFBPPU Sprint 6 4 Nov – 6 Nov (2 issues)
Visualization and Interpretation
TSAFBPPUF-19 Create visualizations to compare predicted vs. actual Bitcoin pric...
TSAFBPPUF-20 Generate interactive charts and graphs for better understanding.
TSAFBPPU Sprint 7 6 Nov – 6 Nov (2 issues)
UI/UX Design
Quickstart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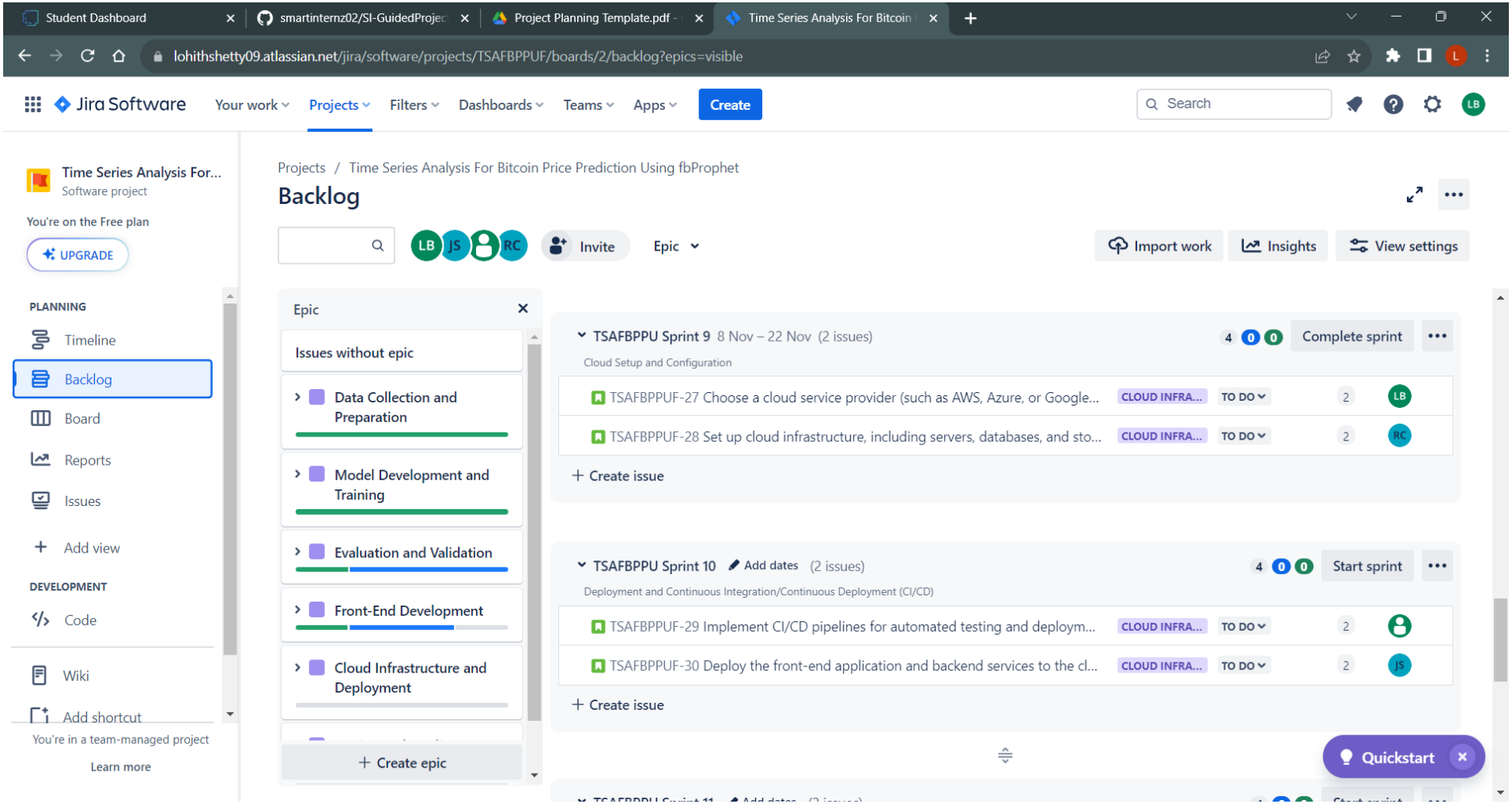
Model Development and Training
Evaluation and Validation
Front-End Development
Cloud Infrastructure and Deployment
Create epic
TSAFBPPU Sprint 7 6 Nov – 6 Nov (2 issues)
0 4 0
Complete sprint
UI/UX Design
TSAFBPPUF-22 Design the user interface for the web application.
FRONT-END ...
IN PROGRESS
2
TSAFBPPUF-23 Create wireframes and mockups for different screens.
FRONT-END ...
IN PROGRESS
2
Create issue
TSAFBPPU Sprint 8 8 Nov – 22 Nov (2 issues)
2 0 2
Complete sprint
Front-End Implementation
TSAFBPPUF-24 Develop the front-end components using appropriate technolo...
FRONT-END ...
TO DO
2
~~TSAFBPPUF-25~~ Implement interactive charts to display predicted and actual Bitc...
FRONT-END ...
DONE
2
Create issue
Quickstart
TSAFBPPU Sprint 9 8 Nov – 22 Nov (2 issues)
4 0 0
Complete sprint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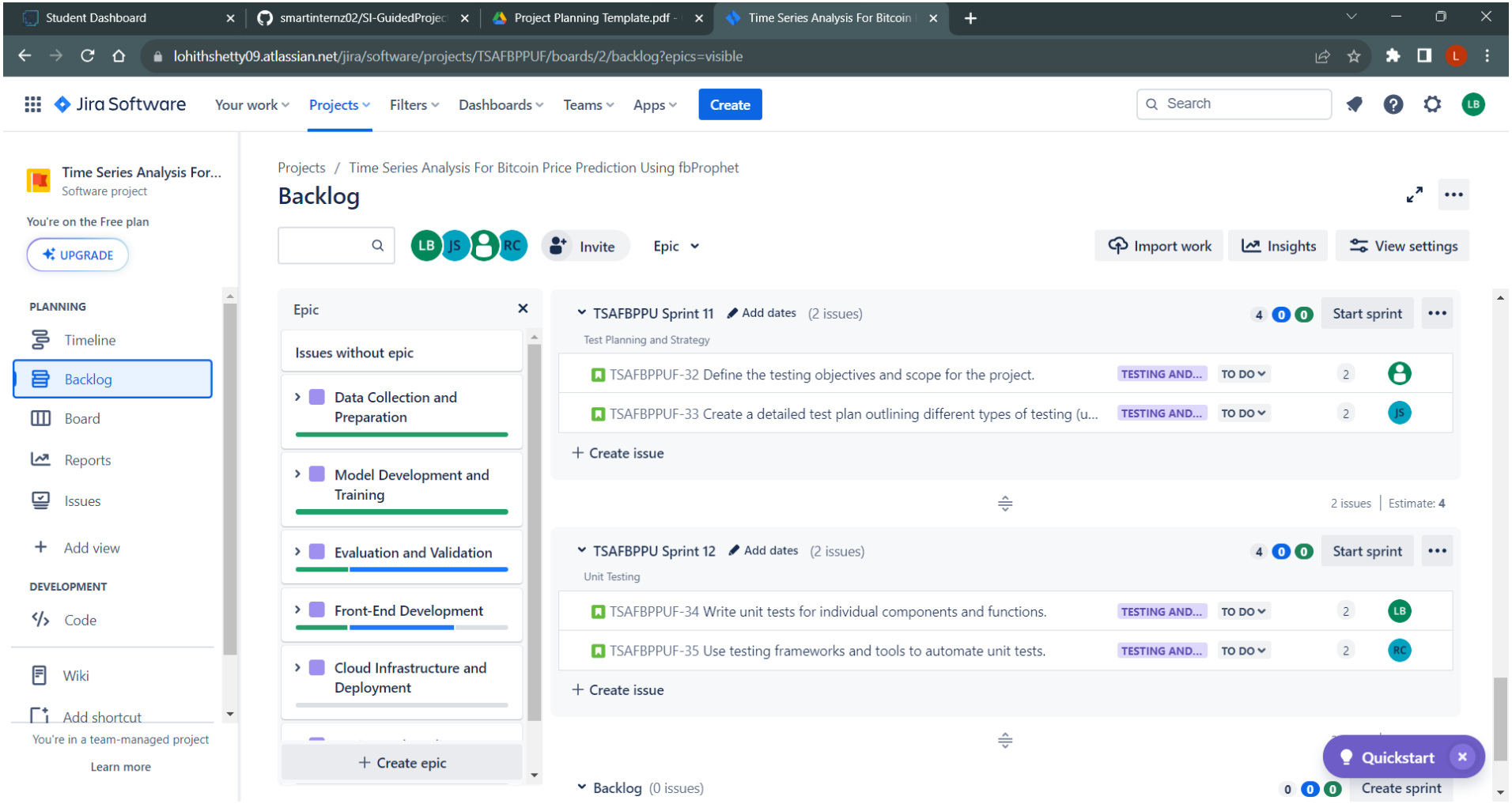
Create epic
TSAFBPPU Sprint 9 8 Nov – 22 Nov (2 issues)
Complete sprint
Cloud Setup and Configuration
TSAFBPPUF-27 Choose a cloud service provider (such as AWS, Azure, or Google...
CLOUD INFRA...
TO DO
TSAFBPPUF-28 Set up cloud infrastructure, including servers, databases, and sto...
Create issue
TSAFBPPU Sprint 10 Add dates (2 issues)
Start sprint
Deployment and Continuous Integration/Continuous Deployment (CI/CD)
TSAFBPPUF-29 Implement CI/CD pipelines for automated testing and deploym...
TSAFBPPUF-30 Deploy the front-end application and backend services to the cl...
Create issue
Quickstart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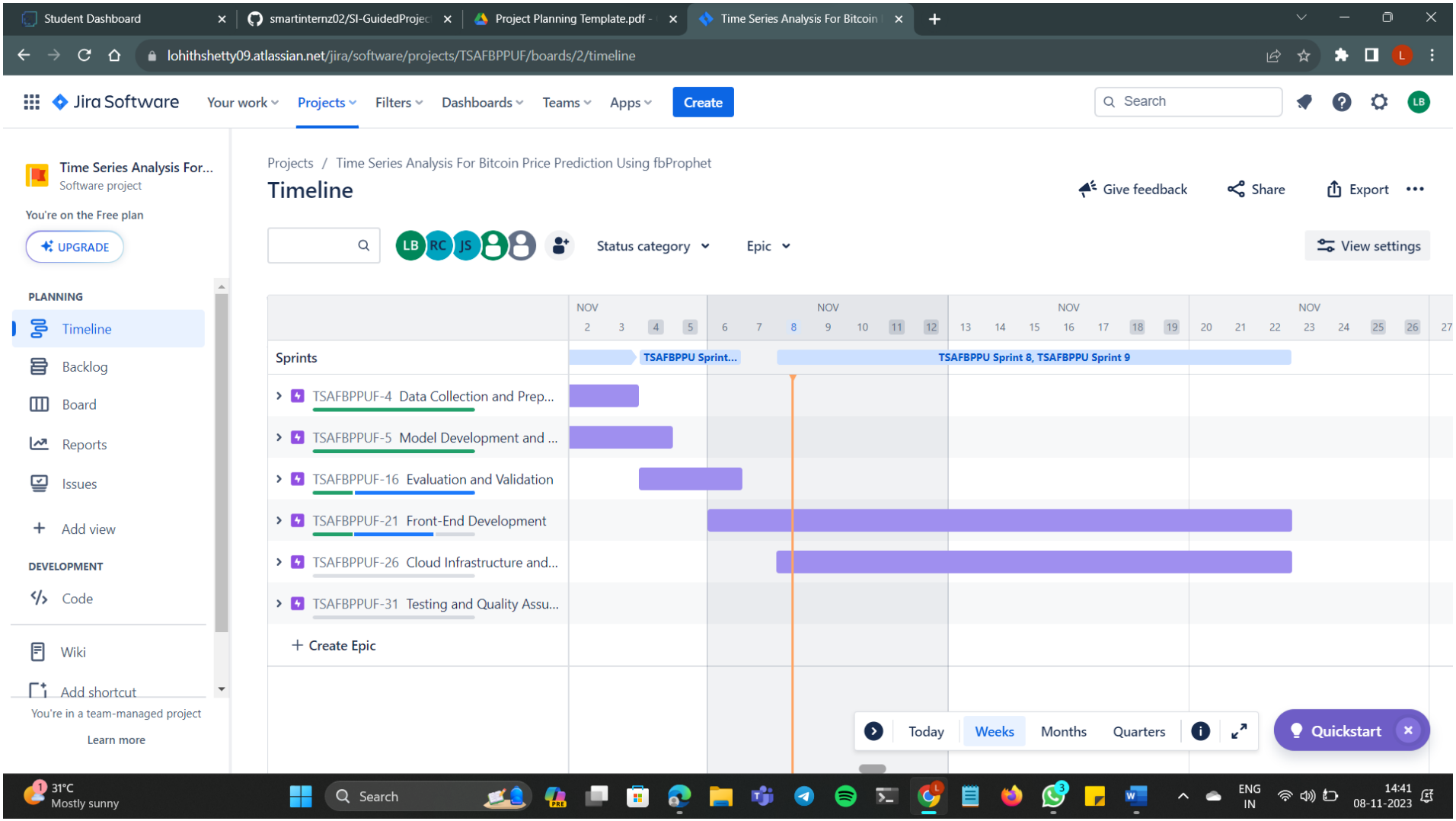
Cloud Infrastructure and Deployment
Create epic
TSAFBPPU Sprint 11
Add dates
(2 issues)
Start sprint
Test Planning and Strategy
TSAFBPPUF-32 Define the testing objectives and scope for the project.
TSAFBPPUF-33 Create a detailed test plan outlining different types of testing (u...
TESTING AND...
TO DO
Create issue
2 issues | Estimate: 4
TSAFBPPU Sprint 12
Add dates
(2 issues)
Start sprint
Unit Testing
TSAFBPPUF-34 Write unit tests for individual components and functions.
TSAFBPPUF-35 Use testing frameworks and tools to automate unit tests.
Create issue
Quickstart
Backlog (0 issues)
Create sprint

Timeline: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TSAFBPPUF-4 Data Collection and Prep...
TSAFBPPUF-5 Model Development and ...
TSAFBPPUF-16 Evaluation and Validation
TSAFBPPUF-21 Front-End Development
TSAFBPPUF-26 Cloud Infrastructure and...
TSAFBPPUF-31 Testing and Quality Assu...
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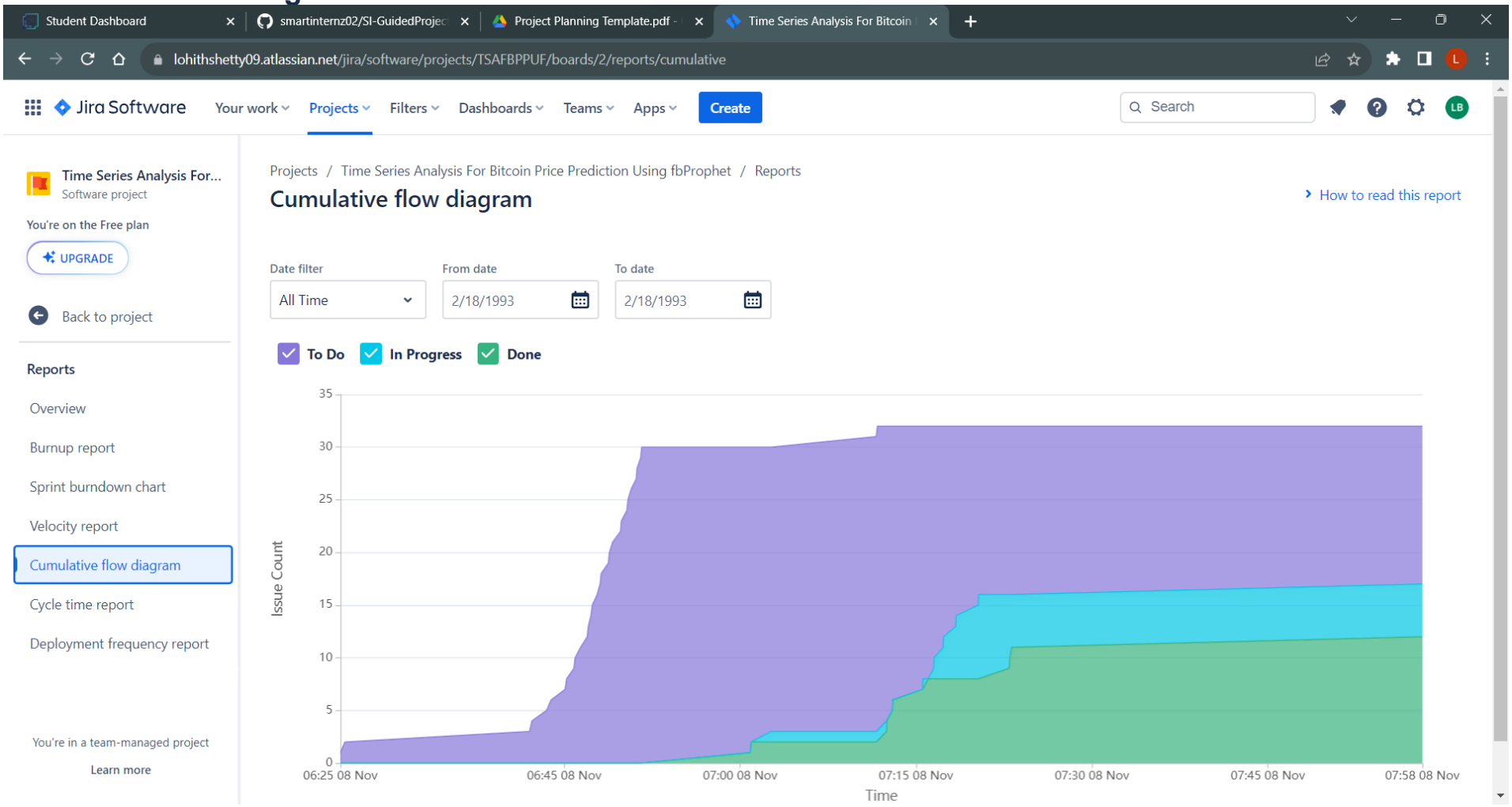
Cumulative flow Diagram



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