Travlendar+ project YOUR testNAMES

POLITECNICO
MILANO 1863

Requirement Analysis and Specification Document

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1 Introduction

Intro text...

1.1 Purpose

The main purpose of this system is to

- telengana government wants to change the way they design their policies related to food production.
- the problem: climate change + rising population = food supply chains at risk
- in order to adapt to these fast changing problems, telengana gov wants to reform the way they build their policies regarding food production
- this system is mean to meet the needs of the telengana government to provide a product focused on the following stokeholders from the larger problem: farmers, agronomists, and policy makers.
- main pillars include using digital public goods and community centric approaches
- this is hopefully enrich the approach to the main issue at hand (climate change + rising population = food supply chains at risk)

Focus on farmers, agronomists, and policy makers

Focus on data-driven design and implementing community-centric approaches.

Goals:
The following goals are an aggregate collection of the goals that serve the three main stakeholders that are in the scope of this system.

ID	Goals
G1	Farmers can visualize relevant data and suggestions based on their location and type of production.
G2	Agronomists and farmers can view weather forecast data.
G3	Farmers can interact with others farmers and agronomists by requesting for help and suggestions.
G4	Farmers can create discussion forums with other farmers.
G5	Agronomists can supervise a sub-area inside the region.
G6	Agronomists can view the ranking of farmers' performance in their specific area.
G7	Agronomists can visualize and update a daily plan to visit farms in their area.
G8	Agronomists can specify the deviations from their daily plan and confirm the execution of their daily plan at the end of each day.
G9	Telengana's policy makers can view the performance of the farmers and the ranking of the farmers.
G10	Telengana's policy makers can determine if support from agronomists and well-performing farmers produces significant results.

1.2 Scope

Here we include an analysis of the world and of the shared phenomena

Considering these users, the design of the system must first consider the following phenomena as features [facts, ??] of the context in which the system will operate in:

Phenomena	Type
Lorem ipsum dolor sit amet, consectetuer adipiscing elit.	W
Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis.	M
Curabitur dictum gravidamauris.	S

1.3 Definitions, Acronyms, Abbreviations

1.4 Revision history

1.5 Reference Documents

1.6 Document Structure

2 Overall Description

Here you can see how to include an image in your document.

2.1 Product Perspective

Here we include scenarios and further details on the shared phenomena and a domain model (class diagrams and statecharts)

- main objective of this system is to serve as an interface (intermediary?) between the farmers, agronomists, and policy makers.
- intention is that this system will incorporate data-driven [blank] and include community focused [blank]?
- this system will bridge the gap across these stakeholders with the goal for the telengana to to produce more effective and data-driven policies.
- since this is a big problem, with many involved people, people geographically spread out, etc this system provides an interface to that data can be shared and effectively used across users.
- strengthen the cohesiveness of the policies generated and informed by data provided by users

2.2 Product Functions

Here we include the most important requirements

Maybe add another table here?

Begin	
ID	**Requirement**
R1	The system must allow the farmer to set the production types of their fields.
R2	The system must allow the farmer to set the position of their fields manually.
R3	The system must allow the farmer to set the position of their fields through their devices' GPS.
R4	The system must keep track of the data about farmers.
R5	The system must provide an interface to visualize data.
R6	The system must be able to analyze data and show statistics.
R7	The system must enable farmers to modify their production type.
R8	The system must enable farmers to report issues they may face.
R9	The system must allow the farmer to report production data at a frequency chosen by the farmer.
R10	The system must retrieve the weather forecast data from the data that the Telengana government collects.
R11	The system must show updated weather forecast data at most 5 minutes from which the data has been published by the Telengana government.
R12	The system must provide weather data that forecasts at least 3 days ahead.
R13	The system must allow agronomists to access weather forecast data specific to their responsible area.
R14	The system must allow farmers to access weather forecast data based on their GPS location or from the location of their farm on record.
R15	The system must provide an interface for farmers to request help and suggestions from other farmers.
R16	The system must provide an interface for farmers to receive help requests and receive suggestions sent to them from other farmers.
R17	The system must provide an interface for farmers to provide suggestions to other farmers.

Cont.	
ID	**Requirement**
R18	The system must provide an interface for farmers to respond to help requests sent to them from other farmers.
R19	The system must provide an interface for farmers to request help and suggestions from other agronomists.
R20	The system must provide an interface for agronomists to receive help requests sent to them from other farmers.
R21	The system must provide an interface for agronomists to respond to help requests sent to them from other farmers.
R22	The system must provide an interface for agronomists to provide suggestions to other farmers.
R23	The system must provide a forum interface.
R24	The system must allow the farmer to create discussion forums.
R25	The system must allow farmers to view all posts in the discussion forum.
R26	The system must allow farmers to post replies in the discussion forum.
R27	The system must keep track of all the forum discussion.
R28	The system must allow agronomists to specify their responsible geographic area.
R29	The system must allow agronomists to modify their responsible geographic area.
R30	The system must be able to analyze data and show statistics.
R31	The system must allow agronomist to view the list of all farmers in their area.
R32	The system must provide an evaluation of farmers such that the evaluation reflects the quality and quantity of their crop production.
R33	The system must enable agronomists to access farmer evaluations from their specific area.
R34	The system updates farmers' evaluation when new data is available.
R35	The system must provide an interface for daily plans.
R36	The system must recommend which farmers should be included in the agronomist's daily plan.
R37	The system must generate recommendations such that farmers are visited by their respective agronomists at least twice a year.
R38	The system must generate recommendations such that farmers with low evaluation are visited more often than twice a year.
R39	The system must allow agronomist to view the list of all farms to visit on a specific day.
R40	The system must allow agronomists to modify which farmers they visit in their plan.
R41	The system must allow agronomists to specify and modify the duration of the visits in their plan.
R42	The system must maintain a record of farmers who have been visited by their respective agronomists.
R43	The system must allow agronomists to modify the daily plan at the end of the day.
R44	The system must allow agronomists to confirm that the daily plan was executed that the end of that day.
R45	The system must not allow anymore modifications to the plan after the plan is confirmed by the agronomist.
R46	The system must only generate a new plan for a new day after the plan from the preceding day was confirmed by the agronomist.
R47	The system must allow Telengana's policy makers to view the list of all farmers.
R48	The system must allow Telengana's policy makers to view the performance and evaluation of the farmers.
R49	The system must allow Telengana's policy makers to view the ranking of the farmers.
R50	The system must allow Telengana's policy makers to view well-performing and poor-performing farmers.

Cont.	
ID	**Requirement**
R51	The system must allow Telengana's policy makers to flag the farmers that need to be helped based on their performance.
R52	The system must designate each farmer a measure of support received by agronomists and other well-performing farmers.
R53	The system must allow policy makers to view the history of farmers' performance/ evaluation.
R54	The system must allow Telengana policy makers to view this measure of support designated to each farmer.

2.3 User Characteristics

Here we include anything that is relevant to clarify their needs
Three users: farmer, agronomist, policy maker

- Farmer:
- Agronomist:
- Policy maker:

2.3.1 Farmer

2.3.2 Agronomist

2.3.3 Policy Maker

- mainly interested in seeing the evaluations generated by the system
- may configure the metric to classify "well-performing" and "bad-performing" farmers based on rankings generated by system, evaluations from data, and natural/ climate circumstances specific to the year
- will use the results seen on DREAM system to make policy decisions. These policy decisions exists outside of the system but will eventually affect the farmers and their production therefore may have an indirect after-effect on the data later inputted into the system
- the system should provide sufficient and clear data and analysis to enable telengana policy makers to make clear determinations of the efficacy of their policy decisions.

EXAMPLE: if the system determines that precipitation levels are decreasing and enabling a water scarcity crisis, policy makers should be able to see that identify that trend in the system and this can motivate them to enforce policy such as investing in water irrigation technologies that increase efficiency and reduce water waste. Once such policies are in place, telengana policy makers can identify if the new policy mediates the water scarcity problem. Scenario 1: see the ranking of all farmers and designate well-performing or poor-performing.

Winston is a policy maker within the Telengana government tasked with providing a mid-season status report on the farmers' progress. He logs into the DREAM system as a policy-affiliate and navigates to the list view of all the farmers. The landing page organizes the farmers by overall score from highest scoring to lowest scoring. Winston changes the ordering to lowest-to-highest by selecting the options from a drop down menu at the top of the window. The region has been experiencing unusually low precipitation levels in July, usually one of the rainiest months of the year. Winston reads this notification

across the top of his window and closes the notification to hide the news ticker. He reconfigures his rank view to show low-to-high and filters by water usage. As he scrolls down the list, the graph at the bottom on the page highlights the subset of data points the Winston is viewing from the list.

Scenario 2: setting triggers/ flags to monitor water efficiency of farmers

Scenario 3: new beta policy subsidizing a specific type of fertilizer is implemented and using triggers, policy makers can observe improving production yield trends in sub-regions where beta policy implemented

2.4 Assumptions, dependencies and constraints

Here we include domain assumptions

Num	Assumptions
1	Lorem ipsum dolor sit amet, consectetuer adipiscing elit.
2	Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis.
3	Curabitur dictum gravidamauris.

3 Specific Requirements

Organize this section according to the rules defined in the project description.

3.1 External Interface Requirements

3.1.1 User Interfaces

3.1.2 Software Interfaces

3.1.3 Communication Interfaces

3.2 Functional Requirements

Definition of use case diagrams, use cases and associated sequence/activity diagrams, and mapping on requirements

Scenario: *Here enter the scenario story that is associated with this use case. Choose a name for the character, preferably one from New Girl???? [Jess, Winston, Cece, Nick, Schmidt, etc] and describe the scenario with sufficient detail to showcase it's relevancy to the functions of the system.*

Name	*Name of the Use Case*
Actor	*Farmer, Agronomist, or Policy Maker*
Entry Conditions	*Enter the entry conditions required for this use case to be relevant/ applicable*
Events Flow	*Enter the flow flow splash splash of events*
Exit Conditions	*Enter the circumstances required to exit this use case situation*
Exceptions	*Enter and exceptions*

3.3 Performance Requirements

3.4 Design Constraints

3.4.1 Standards compliance

3.4.2 Hardware limitations

3.4.3 Any other constraints

3.5 Software System Attributes

3.5.1 Reliability

3.5.2 Availability

3.5.3 Security

3.5.4 Maintainability

3.5.5 Portability

4 Formal Analysis Using Alloy

Organize this section according to the rules defined in the project description.

This section should include a brief presentation of the main objectives driving the formal modeling activity, as well as a description of the model itself, what can be proved with it, and why what is proved is important given the problem at hand. To show the soundness and correctness of the model, this section can show some worlds obtained by running it, and/or the results of the checks performed on meaningful assertions.

5 Effort Spent

Provide here information about how much effort each group member spent in working at this document. We would appreciate details here.