

Agile Business Analysis

Student Chatbot for the Module Business Intelligence Documentation Sprint 1

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Declaration of Authenticity

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1 Purpose of this Document

This chapter of the overall documentation of the first sprint conducted, is dedicated to visualize the purpose of this document.

This documentation is designed in order to describe the following issues:

No.:	Purpose:
1	Defining all specific quality standards necessary to ensure that the level of service delivered is at least that which the customer is expecting
2	Defining the high-level functional requirements of this project
3	Provide all quality measurements appropriate to the first sprint of the project
4	Provide a stakeholder analysis
5	Providing example chat dialogues for prototyping

Table 1: Listing up of the purposes of the documentation.

The level of detail provided will be sufficient to allow the Design Team to consider what technical options may be available to fulfil the requirements and to then recommend which of those options provides the best match.

In addition, the documentation will not provide the following points:

No.:	Purpose:
1	Assuming, deriving, discussing or leading to any particular technical solution, except the by the project team established prototype.
2	Summarising, derive or discuss the justification for the project.
3	Document any requirements that cannot be definitively measured for proof of delivery.
4	The documentation will not provide any so-called non-functional requirements for the final solution

Table 2: Listing up of the aspects which do not become considered in this documentation.

2 Purpose of this Document

The following chapter of this sprint documentation is aimed to provide the reader further detailed information about the project as well as the conducted first sprint.

2.1 Background

This documentation was established as a sub-part of the Module Agile Business Analysis. Hereby, the project team has taken up the challenge to estimate if a possible chatbot solution might enhance the student interactivity as well as accelerate the learning potentiation(potential?). In order to do so, the project team is focusing on the selected module called Business Intelligence, for elaborating if such a chatbot solution may bring additional value.

2.2 Objectives and Scope of the first Sprint

The following objectives were chosen with the lecturer of the module Business Intelligence for the first sprint of this project:

No.:	Objective:
1	Gathering the functional requirements.
2	Conducting a stakeholder analysis
3	Elaborate possible dialogues for the chatbot prototype. Those dialogues need to become established for the following two subjects inside the module Business Intelligence: <ul style="list-style-type: none"> • Performing a quiz to assess the knowledge of the student • Answering questions regarding the given assignment of the module
4	Establish a first prototype which can interact with students regarding the two subjects stated above. This will be done in order to elaborate the need as well as the performance of a final chatbot solution.

Table 3: Objectives and Scope of the first Sprint

Important to note here is, that these stated objectives as well as the scope are only relevant for this particular sprint number 1. Regarding the future sprints there will be new ones stated, which then will become noted.

2.3 Exclusions from the Objectives and Scope

This section visualizes the aspects which regarding the scope became excluded from this sprint. sprint:

No.:	Exclusions from the Objectives and Scope:
1	This project as well as the sprint will only deal with the module Business Intelligence and exclude any other module offered by the FHNW School of Business.
2	This sprint will exclude the non-functional requirements for the final solution.
3	This sprint will only focus on the two mentioned dialogues in this documentation as well as the prototype, which did become stated in the last sub-chapter. Any other possible dialogues for this module will become omitted.

Table 4: Exclusions from the Objectives and Scope

Important to note here is, that these stated exclusions only relevant for this particular sprint number 1. Regarding the future sprints there will be new ones stated, which then will become noted.

3 Stakeholder Analysis

This chapter is dedicated visualizing the five found stakeholders which are involved in the overall project. Those stakeholders are described and identified with a given ID. These stakeholders can be seen in the following tables:

ID	1
Stakeholder	Student
Role	User
Objectives	The student would like to have a bot which motivates him or her to focus more on the BI course.
Knowledge	-
Importance	High
Influence	Medium. Since the main objective of this project is to find out whether a chatbot is suitable to motivate students for BI course.
Attitude/Motivation	medium to low, as they will not benefit from our work
Collaboration	Chris and Celia can meet students on Wednesdays during BI classes

Table 5: Stakeholder ID 1

ID	2
Stakeholder	Knut Hinkelmann
Role	Sponsor
Objectives	Project has to be done in an agile way and the project should be complicated to complex
Knowledge	AI, chat bots, agile
Importance	Medium
Influence	Medium

Attitude/Motivation	Highly motivated as he is the head of the program and enthusiastic about new technologies, he likes to see courses being develop and improved
Collaboration	We receive inputs during classes and deliver our results on time on Github

Table 6: Stakeholder ID 1

ID	3
Stakeholder	Frieder
Role	Product Owner
Objectives	He would like to know if a bot could motivate students and help them for BI course.
Knowledge	BI, Chat Bots
Importance	High
Influence	High; He has to accept the results.
Attitude/Motivation	High; since he is really interested in the results of this agile project, he is highly motivated that this project brings valuable output for further developing his flipped classroom method
Collaboration	1-2 Skype calls per sprint, emails as needed, Chris and Celia have possibility to meet him during classes

Table 7: Stakeholder ID 3

ID	4
Stakeholder	Maja Spahic and Holger Wache
Role	Coach, Sponsor
Objectives	Communication and collaboration during the project should be done via Trello and Github.

Knowledge	Github, Trello, Latex,
Importance	Medium
Influence	Medium, she gives some inputs
Attitude/Motivation	high
Collaboration	meet during classes, upload deliverables on GitHub

Table 8: Stakeholder ID 4

ID	5
Stakeholder	IT FHNW
Role	IT support
Objectives	Support and maintain chatbot
Knowledge	IT Network and
Importance	high
Influence	medium
Attitude/Motivation	not relevant for this project
Collaboration	no collaboration planned in the scope of this project, but important for eventual future implementation

Table 9: Stakeholder ID 5

4 Business Requirements

This chapter of the documentation for the first sprint is supposed to visualize the gathered business requirements. As mentioned in the former sub-chapter called “Exclusions from the Objectives and Scope” (Chapter 2.3), the non-functional requirements are not part of the deliverables of this sprint, therefore only the functional requirements do become listed up. In addition, it is important to note here as well one important point. Firstly, these gathered requirements represent high level aspects of the solution, gathered with the stakeholders. A more detailed list with requirements, might become established in a future given sprint.

4.1 Functional Requirements

In this section the gathered functional requirements do become visualized. Hereby it is important to note, that the functional requirements did receive a so-called Business Case ID, which is referring towards the cause of being relevant in general, towards the assignment, or to the execution of the quiz. However, the functional requirements are listed up in the following table:

Requirement Type	ID-Pre-fix	ID-Number	Description	BC Reference ID - Business Objective	Priority (H, M, L)
Feature-Function Requirements	F	001	Responding towards asked questions by an enrolled student regarding the assignment.	Assignment	H
	F	0002	Asking questions of the quiz towards a student.	Quiz	H
	F	0003	The chatbot should be operatable on the learning platform Moodle.	General	
	F	0004	The lecturer must be able to activate the chatbot.	General	H
	F	0005	the teacher has to be able to remove the chatbot.	General	H
	F	0006	The teacher must be able to set the chatbot hidden.	General	H
	F	0007	The teacher must be able to set the chatbot on unhide.	General	H

	F	0008	The chatbot must be integrated into the module called Business Intelligence.	General	H
Reporting Requirements	R	0001	Breakdowns of the chatbot should become counted.	General	M
	R	0002	Breakdowns of the chatbot should become reported towards the lecturer.	General	M
	R	0003	Breakdowns of the chatbot should become reported towards the IT support.	General	M
	R	0004	The number of interactions of the chatbot with students should become counted.	General	M
	R	0005	The number of interactions of the chatbot and the students, should become reported to the lecturer.	General	M
User Access	U	0001	Only for students of the FHNW School of Business.	Assignment & Quiz	H
	U	0002	Only for students assigned specifically to this module (student must be enrolled into this module).	Assignment & Quiz	H
	U	0003	Accessing the chatbot by clicking on a button	Assignment & Quiz	H
	U	0004	For the user it must be simple to terminate the chatbot function.	Assignment & Quiz	H
Service Level/ Performance/ Scalability/	S	0001	Available 24 / 7 for students	General	H
	S	0002	Fast response time regarding questions stated by the students.	Assignment	H
	S	0003	Fast response time regarding asking questions by a quiz session.	Quiz	H

Information	S	0004	No possibility to insert data files into the chatbot.	General	H
	S	0005	Scalable towards other modules of the master course at the FHNW	General	M
	S	0006	Scalable towards other studies inside the FHNW School of Business	General	Low
	S	0007	Scalable for all schools inside the FHNW	General	Low
	S	0008	Customizability regarding further tasks of regarding the chatbot (Except Quiz and Assignment).	General	High
	S	0009	The chatbot must be executable on all commonly used web browsers.	General	High
Support and Maintenance Requirements	M	0001	Supportable by the IT Support of the FHNW	General	M
	M	0002	Low support needed by the lecturer.	General	M
	M	0003	Low effort to prepare a chatbot by the lecturer.	General	M
	M	0004	Low maintenance effort by the lecturer	General	M
	M	0005	Low requirements effort by the IT support	General	M

Table 10: List of the functional requirements regarding the first sprint of the project.

5 Dialog

The following chapter is supposed to visualize example dialogues, which were created by the project team. These example dialogues were established in order to visualize possible dialogues, which might be asked by a given student when it comes to questions regarding the assignment of the module Business Intelligence as well as possible quiz questions prompt by the chatbot for evaluating the students' knowledge about a given subject.

In addition, the beyond stated dialogues in the next sub-chapters, were implemented in the chatbot prototype by the project team. This prototype can then be effectively tested in order to elaborate the general usability of a chatbot regarding the project's purpose.

However, the first following sub-chapter will visualize the example dialogues regarding the assignment, whereas the second displays the dialogues for the quiz examination.

5.1 Example Assignment Dialogues

This sub-chapter is dedicated to visualizing the possible dialogues regarding the assignment.

Example dialogue regarding the Assignment No. 1:

Student utterance	Dessa (DSSA) utterance	Constraint (triggers are bold)	Additional required knowledge (domain model)	Comment
<i>Version of the dialog where the student is initiating the dialog hence sending questions and Dessa gives responses</i>				
Hey Dessa, do you have time to answer some of my questions on the assignment?				
	Sure. What do you wish to know?			

Dessa, what is task 1 of part 1 of the BIP?			The name of the task ("Integrate services into your workflow").	Maybe we should make it even more explicit that we intend to talk about task XYZ?
	Task 1 is "company description"	$C_r = \text{task 1} = \text{service integration}$ $C_s = \text{know which types of service were integrated}$	"integromat" is-a tool	
And what are the deliverables for task 1?				
	The deliverable for task 1 is "2 – 3 slides presenting the company background, the company mission, the company vision and the company strategy"			
Dessa, what is task 2 of part 1 of the BIP?				
	Task 2 is "make a balanced scorecard"			

And what are the deliverables for task 2?				
	The deliverable for task 2 is “visual representation of the Balanced Scorecard”			
Dessa, what is task 3 of part 1 of the BIP?				
	Task 3 is “Summarize the KPIs”			
And what are the deliverables for task 3?				
	The deliverable for task 3 is “A one-page summary of KPIs and how they are calculated”			
And when is the deadline for part 1 of the BIP?				

	The deadline for part 1 is the 30th October 2019			
Thank you Dessa!				
	You're welcome! Feel free to ask me, any-time you have a question.			

Table 11: Example dialogue regarding the Assignment No. 1

Example dialogue regarding the Assignment No. 2:

Student utterance	Dessa (DSSA) utterance	Constraint (triggers are bold)	Additional required knowledge (domain model)	Comment
<i>Version of the dialog where Dessa is initiating the dialog hence sending questions and the student gives responses</i>				
	Hello Student, do you have time to assess your understanding of the tasks for part 1 of the BIP?			
Sure. What do you wish to ask?				

	What is task 1 of part 1 of the BIP?			
Task 1 is “company description”				
	And what are the deliverables for task 1?	Cr = task = understand task 1 Cs = need to name the deliverable of task 1	Task is of type “know task deliverables”	
The deliverable for task 1 is “2 – 3 slides presenting the company background, the company mission, the company vision and the company strategy”				
	What is task 2 of part 1 of the BIP?			
Task 2 is “make a balanced scorecard”				

	And what are the deliverables for task 2?			
The deliverable for task 2 is “visual representation of the Balanced Scorecard”				
	What is task 3 of part 1 of the BIP?			
The deliverable for task 3 is “A one-page summary of KPIs and how they are calculated”				
	And when is the deadline for part 1 of the BIP?			
The deadline for part 1 is the 30th October 2019				
	Bravo! I believe you have understood everything there is to know about the			

	tasks for part 1 of the BIP. Now go to work stu- dent!			
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Table 12: Example dialogue regarding the Assignment No. 2

Example dialogue regarding the Assignment No. 3:

Student ut- terance	Dessa (DSSA) utterance	Constraint (triggers are bold)	Additional required knowledge (do- main model)	Comment
<i>Version of the dialog where the student is initiating the dialog hence sending questions and Dessa gives responses</i>				
Hey Dessa, do you have time to answer some of my questions on the assign- ment?				
	Sure. What do you wish to know?			
Is there the possibility to extend the deadline of the part 1?			-	
	The extend of the given deadline is	C _r = Deadline is defined by the 30.10.2019	-	Possible rea- sons to extend the deadline:

	only possible due to certain reasons. What is your reason?			<ul style="list-style-type: none"> Sickness / Injuries with medical certificate
Unfortunately, I had an accident and, I am in hospital till the end of October.			-	
	In your case an extension of the deadline is possible, but you need to get in contact with the lecturer by mail as well as providing a medical prescription	C _r = Accident is linked to injury	- Regulations of the FHNW to extend a deadline.	
Okay, when do I need to get in touch with the lecturer?			-	
	I would recommend you doing it as soon as possible.		-	
Thank you Dessa			-	

	No worries I am here for further questions.		-	
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Table 13: Example dialogue regarding the Assignment No. 3

Example dialogue regarding the Assignment No. 4:

Student utterance	Dessa (DSSA) utterance	Constraint (triggers are bold)	Additional required knowledge (domain model)	Comment
<i>Version of the dialog where the student is initiating the dialog hence sending questions and Dessa gives responses</i>				
Hey Dessa, do you have time to answer some of my questions on the assignment?				
	Sure. What do you wish to know?			
I have a question regarding the part 2 of the assignment. What is the minimum amount of KPI's required?			-	
	According to the description	C _r = Part 2 is linked towards	-	

	provided by the lecturer there is no minimum amount of KPI's required. Nevertheless, you should have at least enough in order to derive a multidimensional model with 4 dimensions.	the description of the task.		
Okay, thank you.			-	
	You're welcome		-	

Table 14: Example dialogue regarding the Assignment No. 4

Example dialogue regarding the Assignment No. 5:

Student utterance	Dessa (DSSA) utterance	Constraint (triggers are bold)	Additional required knowledge (domain model)	Comment
<i>Version of the dialog where the student is initiating the dialog hence sending questions and Dessa gives responses</i>				
Hey Dessa, do you have time to answer some of my questions on				

the assignment?				
	Sure. What do you wish to know?			
I have a question regarding the part 2 of the assignment. With which tool should I create the required live demo?			-	
	<p>In order to create a live demo to present your results for the second part of the assignment, I advise you to use the recommended software from the Moodle chapter called "Introduction". They are the following</p> <ul style="list-style-type: none"> • Tableau • Weka • GATE 	C _r = Live Demo is linked with the software to be used, mentioned on Moodle	-	
Okay, thank you.			-	
	You're welcome		-	

Table 15: Example dialogue regarding the Assignment No. 5

5.2 Example Quiz Dialogues

As it became mentioned in the introduction of this chapter, the following section is displaying the example dialogues for the quiz examination. Important to note here is that in all dialogues, the chatbot will be prompting the given questions and the student needs to answer them.

Example dialogue regarding the Quiz Session No. 1:

Student utterance	DSSA utterance	Constraint (triggers are bold)	Additional required knowledge (domain model)	Comment
	Name me something which is important when you model a data model for analytical processing.			
To ensure that the system answers fast to complex queries				
	This is correct. Can you name one more?			
It should represent the real world correctly.				
	Ok, I think you understand it.			

It should even work when a lot of transaction get executed.				
	This is not correct.			

Table 16: Example dialogue regarding the Quiz Session No. 1

Example dialogue regarding the Quiz Session No. 2:

Student utterance	DSSA utterance	Constraint (triggers are bold)	Additional required knowledge (domain model)	Comment
	The company YourFood produces packages food which is perishable. Do you think on time shipment is important for them?			
Yes				
	Yes, this is correct. But currently the "on time shipment ratio" of carriers is off target. May you know some questions YourFood could ask itself?			
In the last quarter, how many deliveries were				

delayed, how many on time?				
What was the average delay of late deliveries				
Was there a carrier for which we can see a negative trend over the last quarters in terms of late deliveries?				
Are there any specific delivery destinations or whole destination regions or countries which were particularly affected by late deliveries?				
	Ok, I think this is good enough.			
	What do you have to measure to answer those questions? Name also the fact?			
Delay of Deliveries				
	This is correct. What is the main			

	dimension you would like to group the delay?			
Carrier				
	Correct! To have a time history what kind of sub dimension may you choose?			
Year or Quarter				
	To understand whether specific destinations or whole regions are affected. What might be an additional sub dimension?			
Country, Region, Territory				
	Correct!			

Table 17: Example dialogue regarding the Quiz Session No. 2

Example dialogue regarding the Quiz Session No. 3:

Student utterance	DSSA utterance	Constraint (triggers are bold)	Additional required knowledge (domain model)	Comment
	Do you want to test your knowledge about			

	multidimensional modeling?			
Yes				
	Please explain what true to the grain means			
it must be possible to associate one single value of each dimension to a given fact or: dimensions must have one unique value for each fact				find synonyms to make more answers valid associate: value: instance, record. Challenge: interpreting semantics
	That's correct. Now an example.			
	A telecommunication company offers classical land-line telephone connections as a service to individual and business customers. Various business stakeholders within the company have an interest in analyzing			

	the way in which customers use their connections, e.g. for designing new service offerings. For analyses, a multidimensional model has been proposed, in which a single fact is defined as a monthly bill being sent out to a customer.			
	Is the dimension call duration true to the grain?			
Yes				
	Unfortunately, that is false. Call duration is too fine, because the bill is for the total duration of ALL calls for that month.			
	What about customer?			
Yes				
	Correct! Each customer receives one bill, so this is true to the grain.			

	Is call target true to the grain?			
No	Correct!			

Table 18: Example dialogue regarding the Quiz Session No. 3

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