

# **TECHNICAL DOCUMENTATION**

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“

**measuring and  
monitoring  
job satisfaction  
among  
IT employees  
within a  
deployment  
agency**

”

In my research I studied to what extend job satisfaction could be measured and monitored among IT employees within a deployment agency. This research is conducted through a **case study** of Linden-IT, a dutch deployment agency.

In this technical documentation, you will find an overview of the **different iterations** and steps towards my final prototype.

My prototype consists of multiple dimensions:  
- the monitoring of job satisfaction through one statement every week,  
- the dashboard where these results are presented in,  
- and the conversational agent that follows up the statement through a data-driven conversation and eventually presenting it to the account manager through a sentiment analysis.

The above three parts are presented in a **Linden-IT application**. This application is available for both the IT employee, as well as the account managers.

In this technical documentation, I am taking you with me through my process by sharing the different iterations I made through brainstorms, interviews, and user testing. This technical documentation presents each dimension of the prototype as different chapters.

# STATEMENTS

## From a survey to weekly statements

I found fairly early in the process that theories from the early 1980s regarding job satisfaction are still used nowadays. Spector (1997)<sup>1</sup> his definition and his 9 facets to test job satisfaction are used in many researches and for that reason, I made the decision to adopt his theory. I found that measuring job satisfaction is difficult through datasets, as one employee might be fine with their salary, but another employee with the same competences might think they do not earn enough. Measuring job satisfaction is measuring the person their feelings towards different facets of their job, which needs be measured through opinions, not datasets.

I decided that I wanted to use the Job Satisfaction Survey (Spector, 1985)<sup>2</sup> because it was reflecting all the 9 facets. But because I wanted to frequently **monitor** the job satisfaction to uphold it over a longer period of time, it would be highly unlikely that every employee would fill in the long, boring JSS every few weeks. For this reason, I composed 10 shorter statements that needed to be rated to measure job satisfaction among the employees. Because I did not have this data from the employees, I started my research with a monitoring-test to gather the data.

<sup>1</sup> Spector, P., (1997). Job satisfaction: Application, assessment, causes, and consequences. Thousand Oaks, CA: Sage Publication Inc.

<sup>2</sup> Spector, P., (1985). Measurement of Human Service Staff Satisfaction: Development of the Job Satisfaction Survey. *American Journal of Community Psychology*, 13, 693-713.

## Goal:

The goal was to gather the data and to get a better understanding of their opinion of the different facets.

## Gathering the data

The monitoring test was conducted with 7 participants who all participated in this test for 3 weeks. All of the participants were from the targetgroup as they are IT employees working at the deployment agency Linden-IT. Each participant rated 2 or 3 statements each day (Figure 1) through a smiley rating system (Figure 2). The results were stored anonymously, and the participants were ensured that these results were not shared with Linden-IT. The expectations were that the statements would not really differ each week, but luckily, this was not the case.

"Ik heb deze week het gevoel dat er geen blokkades zijn, waardoor ik mijn werk goed kan uitvoeren"

08:30 ✓✓



Figure 1. Example statement.

Figure 2. Smiley rating-system.

## TESTING



## Analyzing the data into new insights

After the three weeks, all the data was gathered (Figure 3), and results were analyzed. Different insights were formed from the results:

1. "Professional 6 rated all the work-related statements fairly high (4 or up) but the satisfaction with life statement really low"
2. "The top 3 highest scored facets were: coworkers Linden-IT (4.9 out of 6), coworkers external organization (4.86 out of 6), and supervision Linden-IT (4.76 out of 6)"
3. "The top 3 lowest scored facets were: Pay / Salary (4.04 out of 6), Operating conditions (4.09 out of 6), and contingent rewards (4.14 out of 6)"

	"Ik heb deze week het gevoel dat er geen blokkades zijn, waardoor ik mijn werk goed kan uitvoeren"	"Ik heb het gevoel dat ik niet meer de laatste ben om te werken"	"Ik heb het gevoel dat ik voldoende tijd en ruimte heb om te kunnen werken"	"Ik vind mijn collega's erg fijn / vriendelijk"	"Ik vind mijn collega's erg fijn / vriendelijk en dat ik er veel plezier aan krijg om met hen te werken"	"Ik vind mijn collega's erg fijn / vriendelijk en dat ik er veel plezier aan krijg om met hen te werken"	"Ik heb het gevoel dat er geen blokkades zijn, waardoor ik mijn werk goed kan uitvoeren"	"Ik heb het gevoel dat er veel verschillende mensen mij helpen om mij te ondersteunen"	"Ik heb het gevoel dat er veel verschillende mensen mij helpen om mij te ondersteunen"	"Ik vind mijzelf erg fijn / vriendelijk en dat ik er veel plezier aan krijg om met mezelf te werken"	"Ik vind mijzelf erg fijn / vriendelijk en dat ik er veel plezier aan krijg om met mezelf te werken"	"Ik vind mijzelf erg fijn / vriendelijk en dat ik er veel plezier aan krijg om met mezelf te werken"	Total	Average	
Part 1	MS	4	2	5	2	2	3	4	4	4	4	5	2	184	4,72
	WS	5	5	5	5	5	5	5	5	5	5	5	5		
Part 2	MS	6	3	4	4	3	3	3	4	5	3	3	3	194	4,37
	WS	6	5	5	5	5	5	5	5	5	5	5	5		
Part 3	MS	6	3	4	4	3	3	3	4	5	2	4	4	145	3,72
	WS	5	5	5	5	5	5	5	5	5	5	5	5		
Part 4	MS	4	4	5	4	5	5	4	4	4	4	4	4	173	4,44
	WS	6	5	5	5	5	5	5	5	5	5	5	5		
Part 5	MS	4	3	5	4	4	5	3	3	3	4	2	4	132	3,50
	WS	5	5	5	5	5	5	5	5	5	5	5	5		
Part 6	MS	2	3	4	5	5	6	6	4	5	6	5	5	185	4,74
	WS	5	5	5	5	5	5	5	5	5	5	5	5		
Total	MS	5	3	5	4	5	5	5	4	4	4	5	5	183	4,69

Figure 3. Database with results

## INSIGHTS



## Results

The results were better than expected. There were quite some differences in the results each week, which is good because if you can see a difference within a week, you'll probably also see a difference every 10 weeks.

It is also good to know the top 3 best and worst rated facets. Later on in the chapter 'Linden-IT application', this insight is re-used.

## RESULTS



Now I had the data, and conducted this test for 3 weeks, it was also really important to ask the participants what their experience was.

I asked them to fill out a survey where they could answer different questions regarding the past three weeks and they could provide me with feedback anonymously.

Main goal: Find out if it is possible to let the employee fill in 1 statement every week in order to measure and monitor the job satisfaction.

## Goal:

The goal was to gather the opinion and experience of the employees of rating statements frequently.

## Gathering feedback through a survey

The survey was distributed through google forms and was filled in anonymously by all the 7 participants. Some questions/ statements that were in the survey were:

- "I found filling in the statements effortless"
- "I would be okay with rating 1 statement every week during my employment at Linden-IT"
- How would you rather receive the statements each week?
- What did you think of the smiley-rating system? Would you like another rating system?
- Would you be okay if the results of your statements each week is shared with Linden-IT?

TESTING



## New insights from the survey

The most important insights from these results are:

1. "7 out of 7 employees find filling in the statements 'effortless'"
2. "the results about how they would like to receive and rate the statements were divided but most of them (4 out of 7) want to receive them in the Linden-IT portal as they 'have many different websites from Linden-IT right now and they would like everything in one instead on another application / portal'"
3. "5 out of the 7 employees think rating the statements is best done through the smiley rating system"
4. "The majority is willing to fill in one statement every week as long as they are employees of Linden-IT (6 out of 7)"
5. "Every participant is okay with sharing these results with Linden-IT"
6. "Employees think that Linden-IT would take more action if these results would be shared with the organization. Additional reasons given are 'easier to express yourself', 'gives a better perspective', 'being less ignored', 'gives an overall picture'.

INSIGHTS



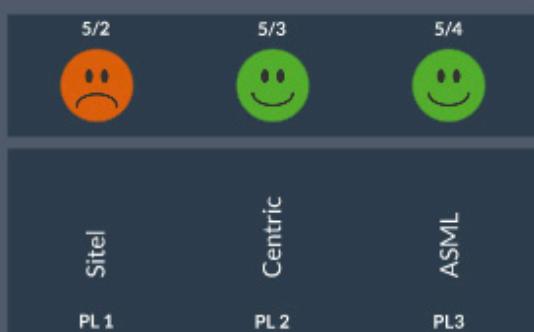
## Results

With the above insights, I did not change the content of the statements, but it was made clear that the employees wanted this implemented in the Linden-IT portal, that the smiley rating system stayed, and the most important insight: they found filling in the statements effortless and are willing to fill in 1 statement every week during their employment.

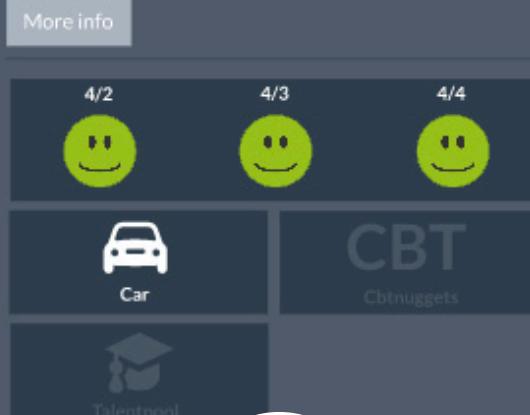
RESULTS



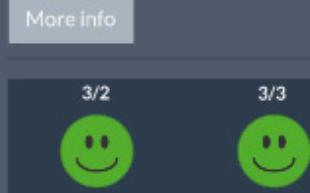
## Nature of work



## Fringe Benefits



## Contingent Rewards



# DASHBOARD

At I first thought that my only prototype would be a dashboard that shows the job satisfaction of each IT employee regarding each facet (Spector, 1997) through the use of the weekly statements. Therefore I started with building the dashboard. Linden-IT delivered different datasets containing information regarding salary, fieldmanagement, amount of calls, and placements of each IT employee. (For more information regarding the privacy anonymization of the datasets, visit the GDPR chapter in my academic paper.)

As stated above, measuring job satisfaction is hard with just data, as job satisfaction reflects on the person their feelings, but the data would help with creating an overall view of an employee and their information regarding their employment such as salary or last moment of contact. This would help if an account manager sees that the employee has a low rating with salary, what the salary of that professional is right now. That is why the dashboard was created.

The data used was delivered by Linden-IT. It was anonymized before delivered to me. The data was delivered in four different files. The first file was 'Calls' and consisted of all the calls made from the beginning of 2018 to march 2020. The time, date, and corresponding account manager was added.. The second file was 'Fieldmanagements' and consisted of all the fieldmanagements consisting of the time, date, and corresponding account manager. Again, no content was delivered. The third file was 'Contactinfo' and consisted of a large file of the employees their information such as, job contract, birthday, age, and salary. The forth and last file consisted of information of the employee their historical placements. Only the traveldistance, job description, and dates were provided. The names of the external organization was left out due to privacy reasons.

## Data cleaning + data analysis

To get a better understanding of the data that was delivered, I started with the data cleaning, data analysis and data visualization. As the delivered data was already really structured and delivered in a csv format, the data cleaning was not a real time-consuming step. The largest step was the data analysis. By carefully analyzing the data, new data frames were later exported so I could use it in the dashboard.

Because the idea was that the dashboard was made for each IT employee, I started with exporting the data of 1 employee (Figure 4). Names of the employee were of course not provided but were translated onto unique codes, so I could still make 1 data frame regarding 1 employee. To take a look at the complete file of my data analysis, visit:

[https://github.com/nikkivandam/Graduation/blob/master/Dashboard/data\\_analysis/Data\\_analysis.ipynb](https://github.com/nikkivandam/Graduation/blob/master/Dashboard/data_analysis/Data_analysis.ipynb)

```

jupyter Data_analysis Last Checkpoint: 14-05-2020 (autosaved)
File Edit View Insert Cell Kernel Widgets Help Trusted Python 3 0

In [55]: df_fn_profil.to_csv('MergedPMNSplit.csv')
Out[55]: Contact ID
0 0035700002Ce0ye 29-03-2020 14:00, 17-02-2020 16:37, 29-01-2020

In [56]: df_fn_profil = df_fn_profil.groupby(['Contact ID']).apply(lambda x: x.join().reset_index())
df_fn_profil.columns = [ 'Contact ID', 'Fn' ]
df_fn_profil
Out[56]: Contact ID
0 0035700002Ce0ye 29-03-2020 14:00, 17-02-2020 16:37, 29-01-2020

In [57]: # back to the df at the beginning to only select one professional
df_employee_profil = df_employee[df_employee['Contact ID'] == "0035700002Ce0ye"]
df_employee_profil
Out[57]: Contact ID
118 0035700002Ce0ye Employee 23-04-2018 05-06-2020 Projectcontract 0 4761 NP 18-10-1996 23.0 2000
Out[58]: # join 's merge
df_merge = pd.merge(df_employee_profil, df_fn_profil, left_on = 'Contact ID', right_on = 'Contact ID')
df_merge.head()
Out[58]: Contact ID
0 0035700002Ce0ye Employee 23-04-2018 05-06-2020 Projectcontract 0 4761 NP 18-10-1996 23.0 2000
Out[59]: # export to csv
df_merge.to_csv('MergedContactID+FN.csv')

In [60]: # Now bring in the next dataframes
df_placements = pd.read_csv('data/placements_linden.csv', sep=';')
df_placements.head(10)
Out[60]: Contact ID Placement ID Start Date End Date Reason Ended Travel Distance Job Description
0 0035700029f1e abm67000004Y4F 09-05-2017 31-07-2017 Overname 1040 uur NaN NaN
1 0035700029f1e abm67000004Y4F 09-05-2017 31-07-2017 Overname 1040 uur NaN NaN
2 0035700029f1e abm67000004Y4F 09-05-2017 31-07-2017 Ontslag genomen - salaris NaN NaN
3 0035700029f1e abm67000004Y4F 21-05-2018 10-06-2018 NaN NaN
4 0035700029f1e abm67000004Y4F 27-03-2018 31-07-2018 Ontslag genomen - anders NaN NaN

```

Figure 4. Database with results

## Goal:

The goal was to observe which actions they would take when looking at the dashboard and different scenarios.

## TESTING



## Usertesting

As the sales world has a lot of dashboards, it was highly needed to test the dashboard for effectiveness and to test if everything was clear with the target group. As the monitoring test was not finished yet and the dashboard was not completely coded, I thought it would be better to create a clickable fake dashboard through Adobe XD, just for testing. This method is called '**'Wizard of Oz'**', it saves you time and the users think they are using a real system. With this method you are observing the user while testing the prototype through scenarios and can ask additional questions.

Testing the dashboard was done with three participants from the target group through observing the user while they are using the dashboard. Two participants are working as account managers and one is working as a recruiter.

Also, further insights were gathered by asking additional questions while they are testing it and by a short interview at the end.

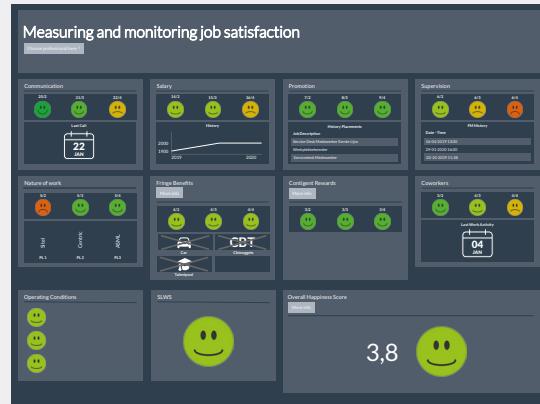


Figure 5. The Adobe XD fake dashboard.

## New insights

Important insights that were gathered are:

1. "Both account managers as recruiters first look at the worst smileys as they state that this is the most important for them to look at"
2. "All three the participants find the facet of 'promotion' the least important as they state that 'employees do not work for them to get promotions; it is namely to kickstart their career'"
3. "The facets of 'communication' and 'supervision' are seen as the most important"
4. "The general aim of the dashboard was clear"
5. "The participants said they would make use of the dashboard once every week or so"

## INSIGHTS



## Results

Since I had all the important insights for the dashboard and the data cleaned and analyzed, the finished dashboard could be composed. I changed the order of some facets from important to least important from the insights, I included the smileys from the monitoring results, and made it look visually appealing.

## RESULTS



To take a look at the complete code of my dashboard, visit:  
[https://github.com/nikkivandam/Graduation/blob/master/Dashboard/data\\_visualization/dashboardtry.py](https://github.com/nikkivandam/Graduation/blob/master/Dashboard/data_visualization/dashboardtry.py)

To take a look at the online version of my finished coded dashboard, visit:  
<https://jobsatisfaction.herokuapp.com/>

# CONVERSATIONAL AGENT (CA)

My prototype so far (the dashboard) was created to monitor job satisfaction, but without the account managers taking a look at it, there would be no monitoring happening.

For that reason, I started to take another look at some important insights I gathered:

- The account managers would only take a look once every week at the dashboard.
- If the account managers would not look at the dashboard, nothing is happening.

I found that it would be too risky to completely leave the follow-up in the hands of the account managers. Automizing follow-up calls or contact moments when a statement is rated bad (3 and lower), would help in the process of maintaining a high job satisfaction. Time to brainstorm..

The brainstorm session resulted in choosing for a Conversational Agent (CA). A Conversational Agent differs from a chatbot, as a CA is a goal oriented dialog agent. It is designed for specific tasks and is data-driven because it needs input from the user to complete these tasks. A chatbot is designed to sound 'human-like' and learns from a human conversation to learn how to respond better. It is designed also for entertainment, unlike a CA.

The CA would function as a follow-up step. Whenever an IT-employee rated a statement, the CA is there to gather the first reaction through a short conversation that opens up the opportunity for the IT employee to leave feedback. This information would then be presented to the corresponding Account Manager through a notification, and if necessary, leave a call.

However, at the very last moment, when looking at the GDPR, it would be quite difficult to just present the whole chat from the IT employees with the CA to the corresponding account managers, due to many privacy issues. Therefore, a sentiment analysis is brought into the concept. A sentiment analysis is executed through the conversation of the IT employee with the CA, resulting in a 'neutral', 'positive', or 'negative' notification. This result is thereafter presented to the Account manager in the notification. This opens up the opportunity for the account manager to easily see how the IT-employee is feeling, and get into the conversation more prepared.

The conversational agent is created through the use of the Bot Framework Composer and Emulator from Microsoft. These software programmes are both not on the market yet but are open-source available through github. In combination with the LUIS.ai, a more stable flow could be achieved, and a sentiment analysis can be executed. I spend a lot of time training my LUIS file so it gets smarter and makes better decisions that could be used in creating a better flow or a better sentiment analysis. The chatbot is built in C# coding format and the code is added in the appendix as well.

The accuracy of the CA can be increased by training and testing the LUIS.ai set. It becomes smarter, the more you train it (Figure 6).

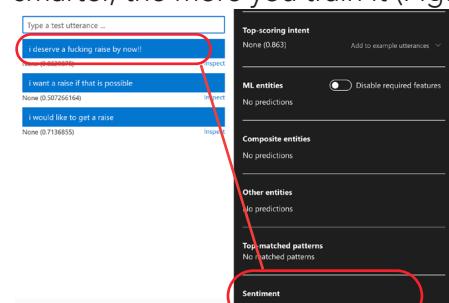


Figure 6. Training the LUIS set for sentiment analysis

## Goal:

The goal was to see if the flow works properly, their thoughts of the follow-up from the statement, and if they think they would use the CA.

## Usertesting

The conversational agent is also tested through three iteration phases with three participants. The CA would only be used by the IT employees and was therefore only tested among this target group. After a participant tested the application, these insights were processed into the CA, and thereafter tested with the other participants (and so on..).

It was tested through different pre-written scenarios that the participants had to follow. With this method, you are testing if the user understands how to get to a pre-determined point. Also, it was very important to get a better understanding of the experience the user had with the chatbot; did they like it? do they think it helps in the process? Do they feel they are more heard? These questions were asked additionally to the usertest.

TESTING



## Analyzing the data into new insights

The most important insights:

1. "The chatbot spoke in a 'we'-form (Figure 7), this is later changed to 'I' as the participants felt weird about this"
2. "Participants thought it was strange that this CA was built in the application, but you still had to fill in your profile settings (Figure 7), therefore it is changed in the CA that you only fill in the four-digit employee code that you also need for the application"
3. "All of the participants state that they would not use the Linden-IT bot to 'just have a chat' but state it would be better and nicer to just quickly gather the more practical information such as; vacation days, vacation pay, or requesting a day off."
4. "There were quite some issues regarding the flow of the chatbot when someone pressed a 'not correct' button to erase certain information they filled in"

INSIGHTS

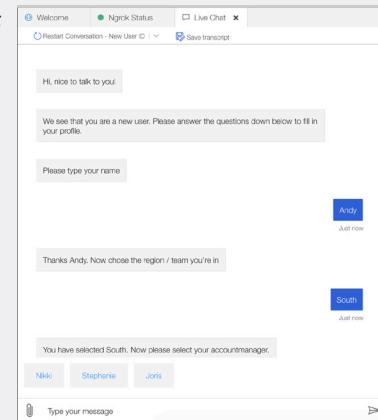


Figure 7. Conversation profile settings.

## Results

It is not possible to let the CA operate on another computer. For this reason, I made the decision to create a video where you can see my working CA.

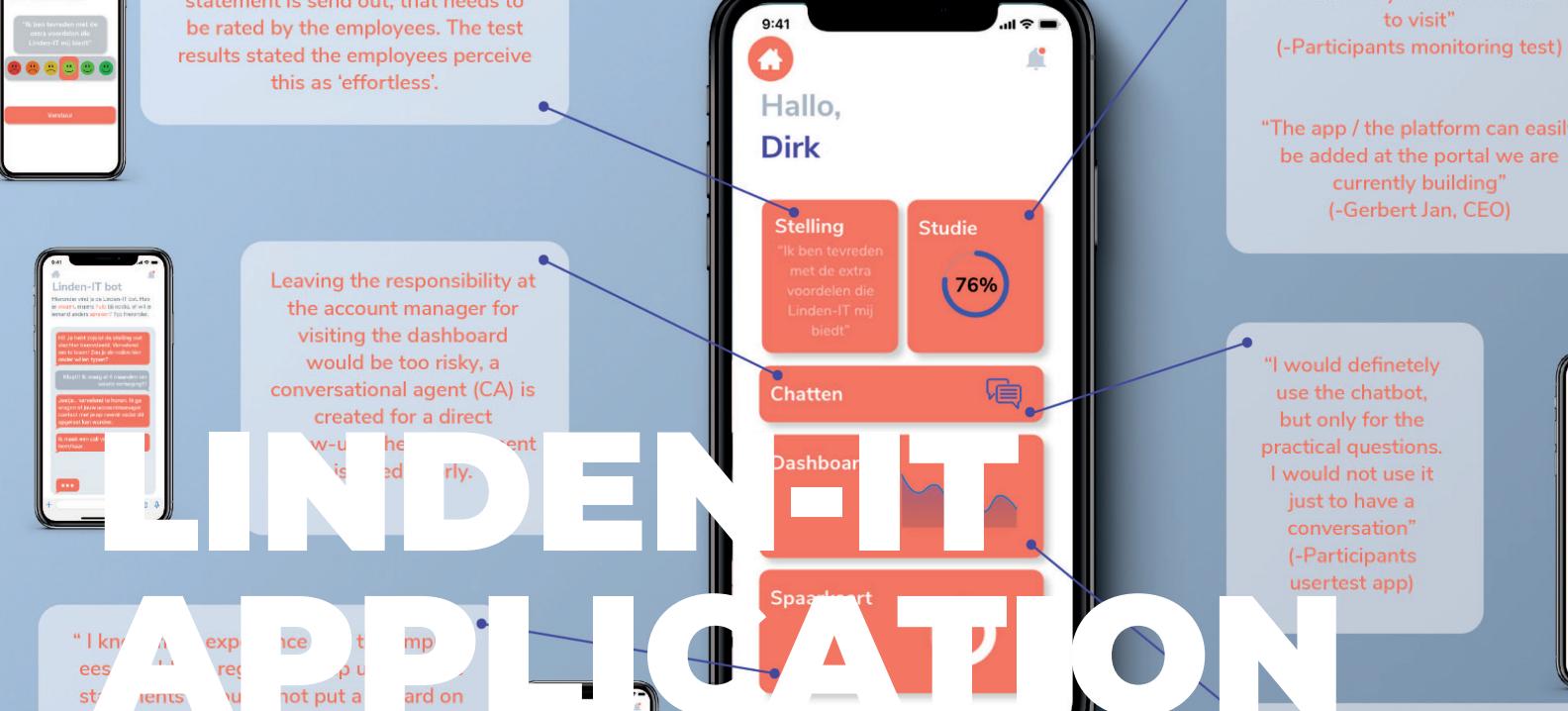
To watch a full operating video of the results of my CA, go to: <https://github.com/nikkivandam/Graduation/tree/master/ConversationalAgent>

RESULTS



A whole ZIP-file with the chatbot in it is also available on my GitHub as well as my Luis file with the created sentiment analysis and trained intents. go to: <https://github.com/nikkivandam/Graduation/tree/master/ConversationalAgent>

I added the flowcharts to quickly see an overview of the different dialogs that are implemented in the CA. These flowcharts are added in the Appendix A. I also added the code for the different intents and entities to create a better view of the CA (Appendix B).



# LINDEN-IT APPLICATION

Now I had the three main components that were really important:

- the weekly statement to measure and monitor job satisfaction
- the dashboard that presented the results
- and the conversational agent that follows up the statement through a data-driven conversation and eventually presenting it to the account manager through a sentiment analysis.

For the reason that an insight (Chapter: Statements, Insight: 2) stated that the employees would like to fill in the statements through an overarching Linden-IT portal, I arranged a meeting with the CEO Gerbert-Jan of Linden-IT to gather more information about this portal and the possibilities towards my prototype. Through this '**expert review**' I had the chance to look at the possibilities of my prototype within Linden-IT from a professional point of view.

Together with Gerbert-Jan I spoke about the dashboard, the weekly statements, and mostly about the portal.

## New insights

The most important insights from this meeting are:

1. "Linden-IT is right now creating one portal where the employees can keep up with their certificates or file in requests for a vacation day"
2. "Linden-IT is creating their own studies for employees to collect different certificates"
3. "Gerbert-Jan really liked the idea of a weekly statement as this opens up the possibility to give a current overview of the job satisfaction"
4. "Gerbert-Jan also enlightened the fact that he thinks I need to implement rewards if they are filling in the statement every week, as he said that 'you get most out of the situation if you connect a reward to the action'"
5. "Gerbert-Jan thinks that the weekly statement could easily be implemented in the Linden-IT portal that they are currently building"

**INSIGHTS**

After the meeting with Gerbert-Jan, I found it was clear that the "under construction" Linden-IT portal was a great opportunity to create an application that could later be implemented in the portal.

After the testing of the dashboard, executing a monitoring test for the weekly statements, and the expert review with Gerbert-Jan, I decided to not lose any time and start to design the application that needed to be tested as well (Figure 7).

**The application was designed through all the insights I gathered in the previous tests and conversations.**



Figure 8. Log-in-pages.

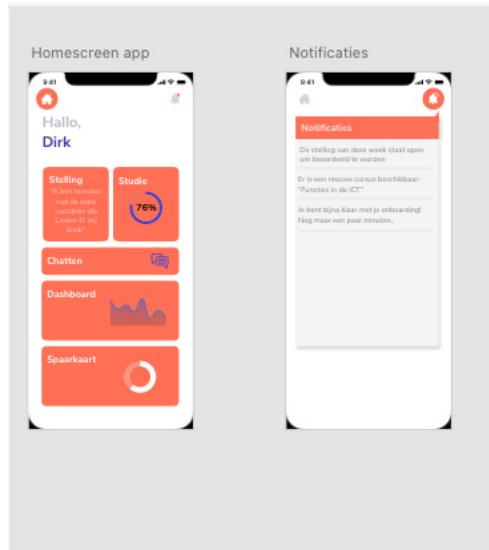


Figure 9. Home-page & Notification-page.

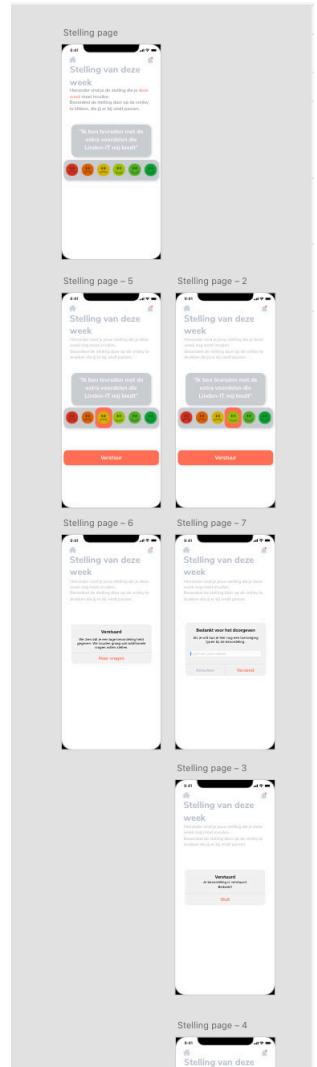


Figure 10. Statements -pages.

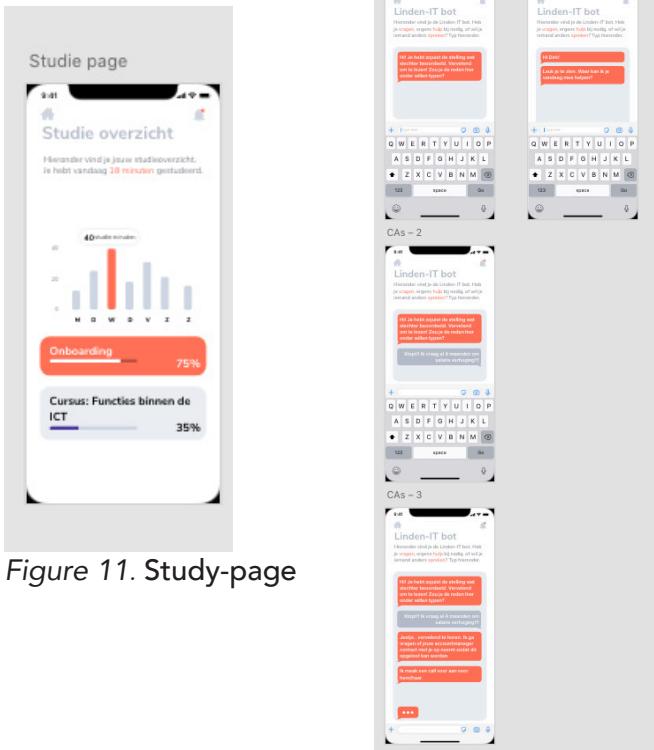


Figure 11. Study-page

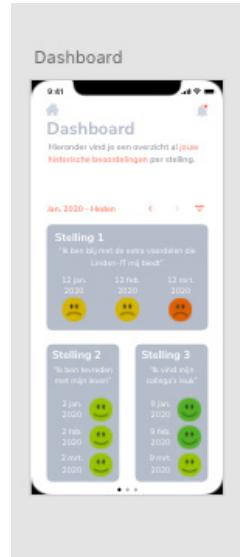


Figure 12. Dashboard -page.



Figure 13. Dashboard -page.

Figure 8 to 14. First prototype of the application for the IT employees, made for testing.

### **Goal:**

The goal was to see if the UX was clear, gather the experience of the employees and to see if it would contribute to the job satisfaction of the employee.



## **TESTING**

### **User testing**

When the design was finished, I wanted to test this as soon as possible to not, again, loose any time.

The application was designed through Adobe XD, to make it fairly easy, fast, and clickable. Adobe XD opens up the opportunity to test the screens in an easy manner and also records the screen while user testing.

The application was tested through three iteration phases, with three participants.

All of these participants were IT employees working at Linden-IT. After a participant tested the application, these insights were processed into the application, and thereafter tested with the other participants (and so on..).



## **INSIGHTS**

### **Gathered insights**

1. "All of the participants were really positive about the application"
2. "The participants think different about how many times they would use the dashboard-page "
3. "All the participants emphasized the need for a platform that has all the platforms in one"
4. "Some headers on the home-page were not clear enough for the navigation"



# THE RESULT

To measure job satisfaction, a weekly statement is send out, that needs to be rated by the employees. The test results stated the employees perceive this as 'effortless'.

Leaving the responsibility at the account manager for visiting the dashboard would be too risky, a conversational agent (CA) is created for a direct follow-up when a statement is rated poorly.

"I know from experience that the employees would not regularly keep up with the statements if you do not put a reward on it."

(-Gerbert Jan, CEO Linden-IT)

The third worst rated facet is 'contingent rewards'. The employees feel they do not get rewarded often enough.

(-Monitoring test)

"I would prefer everything in 1 portal. Right now, we already have so many different websites to visit"

(-Participants monitoring test)

"The app / the platform can easily be added at the portal we are currently building"

(-Gerbert Jan, CEO)

"I would definitely use the chatbot, but only for the practical questions. I would not use it just to have a conversation"

(-Participants userstest app)

"I am okay of my results are being shared, that would be good for Linden-IT, but I also want to have access to my own results"

(- Participants monitoring test)

Figure 15. Overview of the final prototype of the Linden-IT application for the IT employees with all the insights.

The final prototype of the Linden-IT application for the IT employees is presented in Figure 15, along with all the most important insights and the sub-screens.

The final (clickable) Adobe XD application is available through the following link:  
<https://xd.adobe.com/view/c5c8b171-63b6-4c92-6fa7-1ba9454161da-b3f9/?fullscreen&hints=off>

**When I finished this prototype, I was really satisfied with the way it all came together in one final prototype. With the account managers point of view, I missed that. You had the dashboard and the results of the CA through the sentiment analysis but I was missing the part where it would all 'come together' in this situation.**

**For that reason, I designed a similar application for the account managers. In this application, the dashboard, the notifications, and the sentiment analysis needed to be available.**

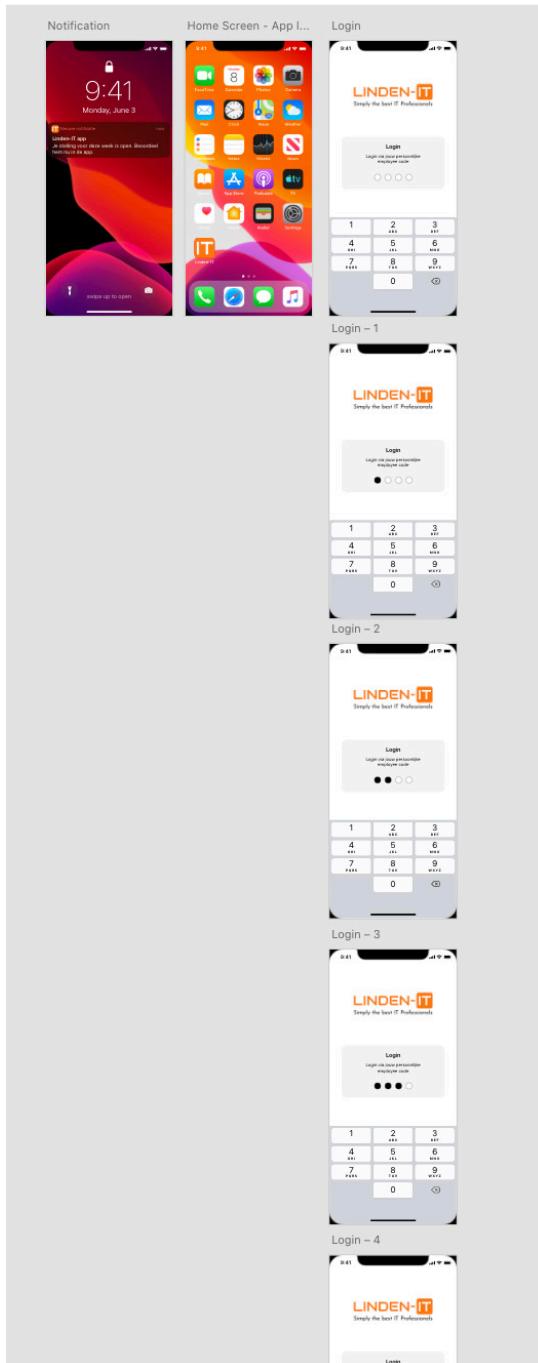


Figure 16. Chatbot-pages.

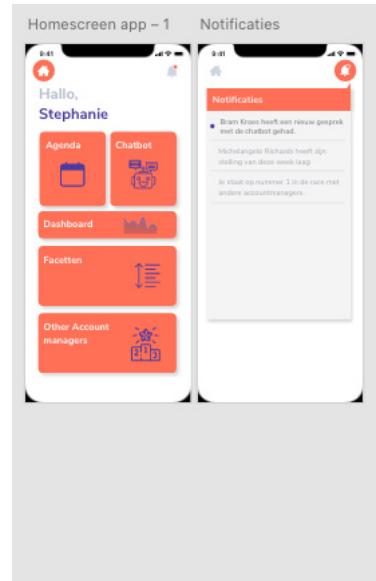


Figure 17. Home-page & notifications-page.

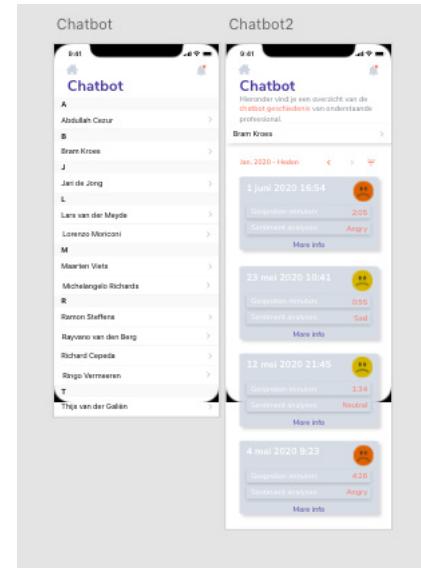


Figure 18. Chatbot-pages

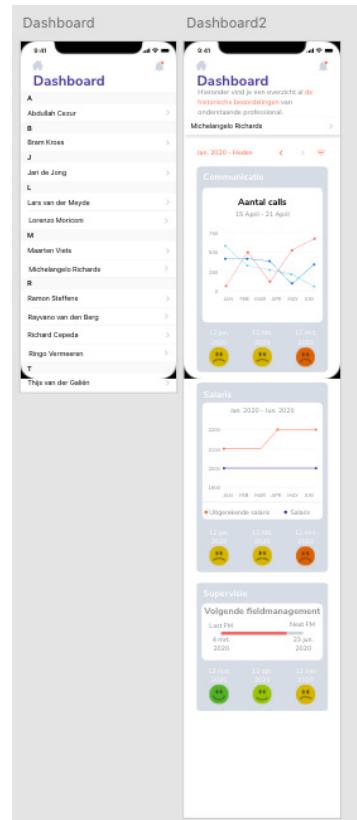


Figure 19. Dashboard -pages.

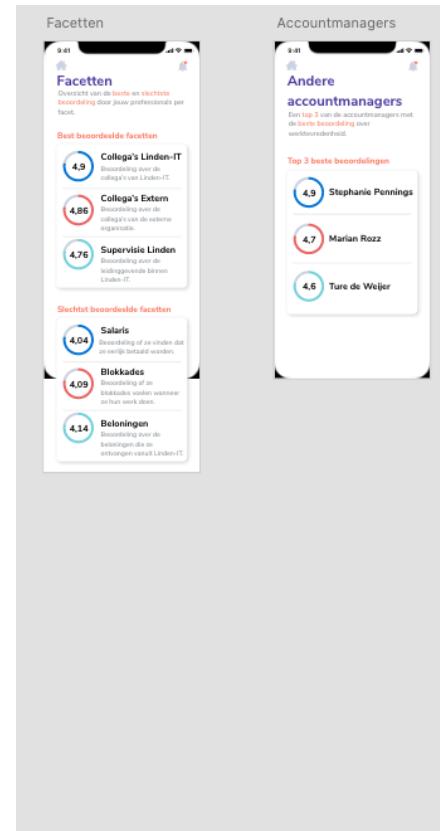


Figure 20. Facet-page & Other account managers-page.

Figures 16 till 20. First prototype of the application for the account managers, made for testing.

## **Goal:**

The goal was to see if the UX was clear, gather the experience of the AMs, and to see if it would contribute to presenting the results of the job satisfaction of the employees.



## **TESTING**

### **User testing**

The user testing of this application was conducted similar to the application of the IT employees.

The application was also designed through Adobe XD to test the screens in an easy manner and also records the screen while user testing.

The application also was tested through three iteration phases, with three participants. All of these participants were from the target group as they are working at Linden-IT in the function of account managers. After a participant tested the application, these insights were processed into the application, and thereafter tested with the other participants (and so on..).



## **INSIGHTS**

### **Gathered insights**

1. "All the participants really liked the idea of the CA follow-up as they think 'it is good that there is an immediate feedback moment'"
2. I really wanted to see if the participants liked the 'Other account managers'-page because I did not know what they would think of this idea:  
"All the participants really liked this page since all of the 'competitions' are only based on sales and never about the aftercare or the well-being of the employees"
3. "All the AMs emphasized the importance of the saving card when I showed them the app for the IT employees"



# THE RESULT

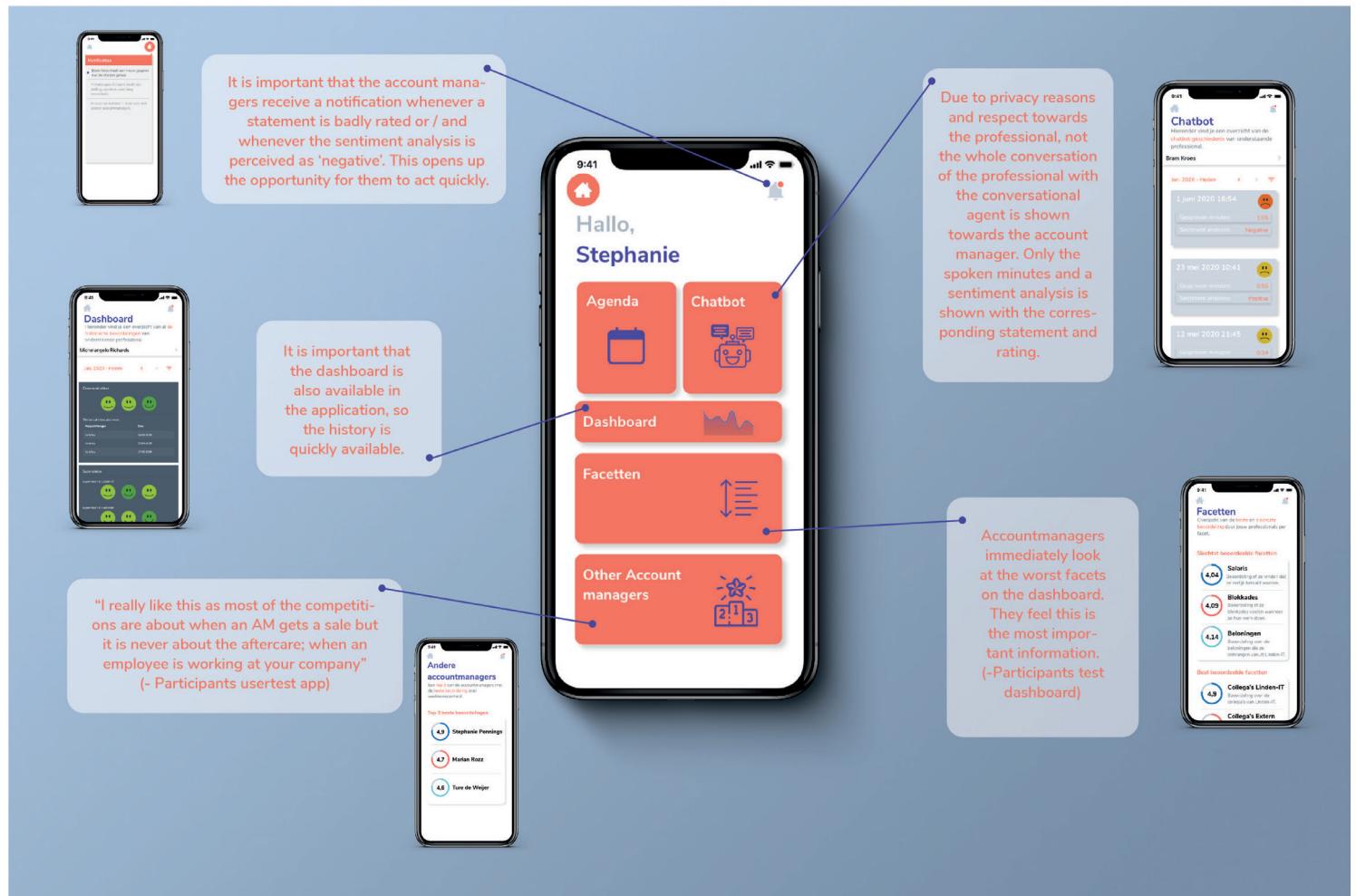


Figure 21. Overview of the final prototype of the Linden-IT application for the account managers with all the insights.

The final prototype of the Linden-IT application for the account managers is presented in Figure 21, along with all the most important insights and the sub-screens.

The final (clickable) Adobe XD application is available through the following link:  
<https://xd.adobe.com/view/c1a9ee30-17f5-4ccc-57bd-5d61cfe0509c-b798/?fullscreen&hints=off>

# Appendix A

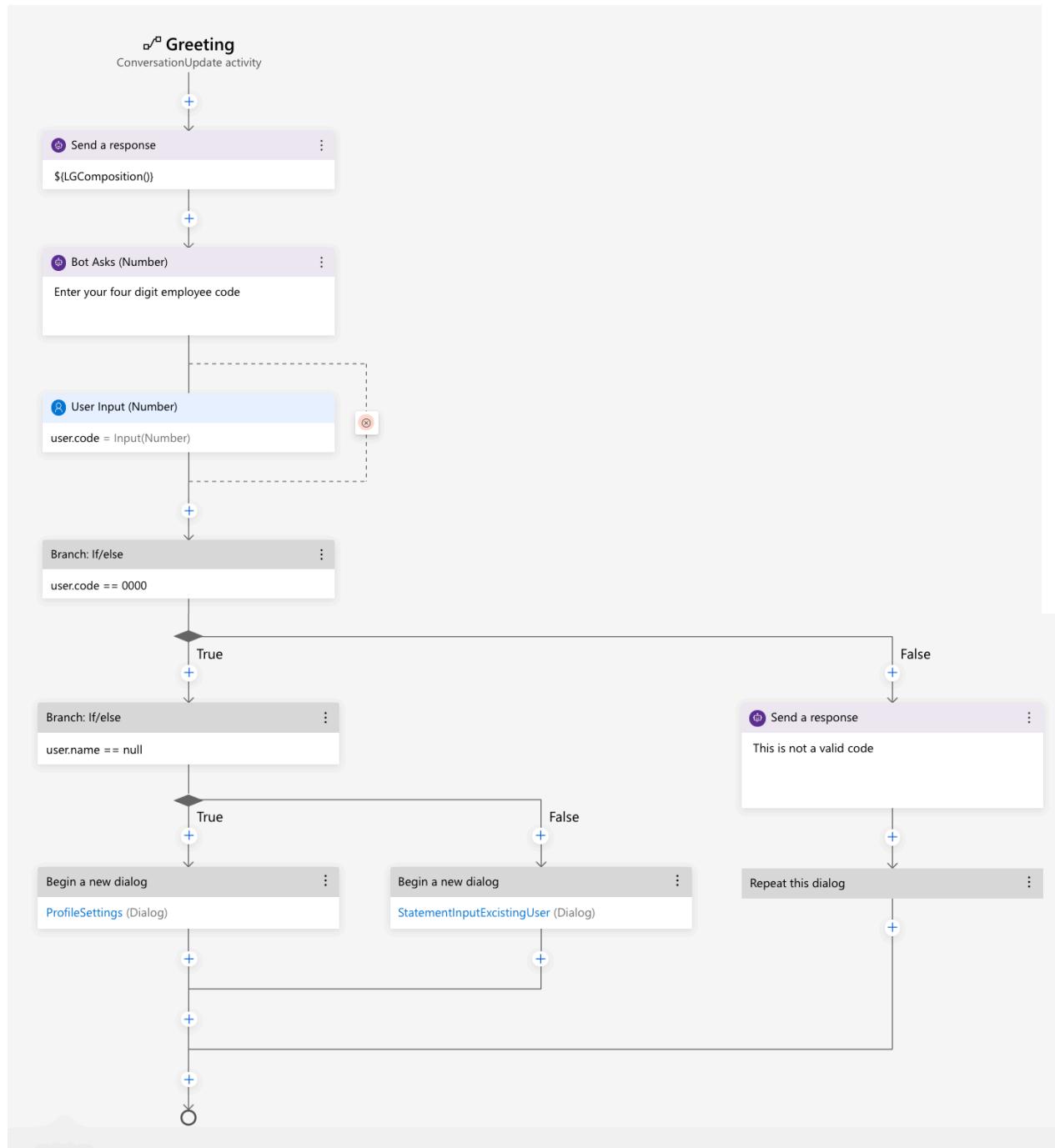


Figure 22. Greeting-dialog where the CA starts.

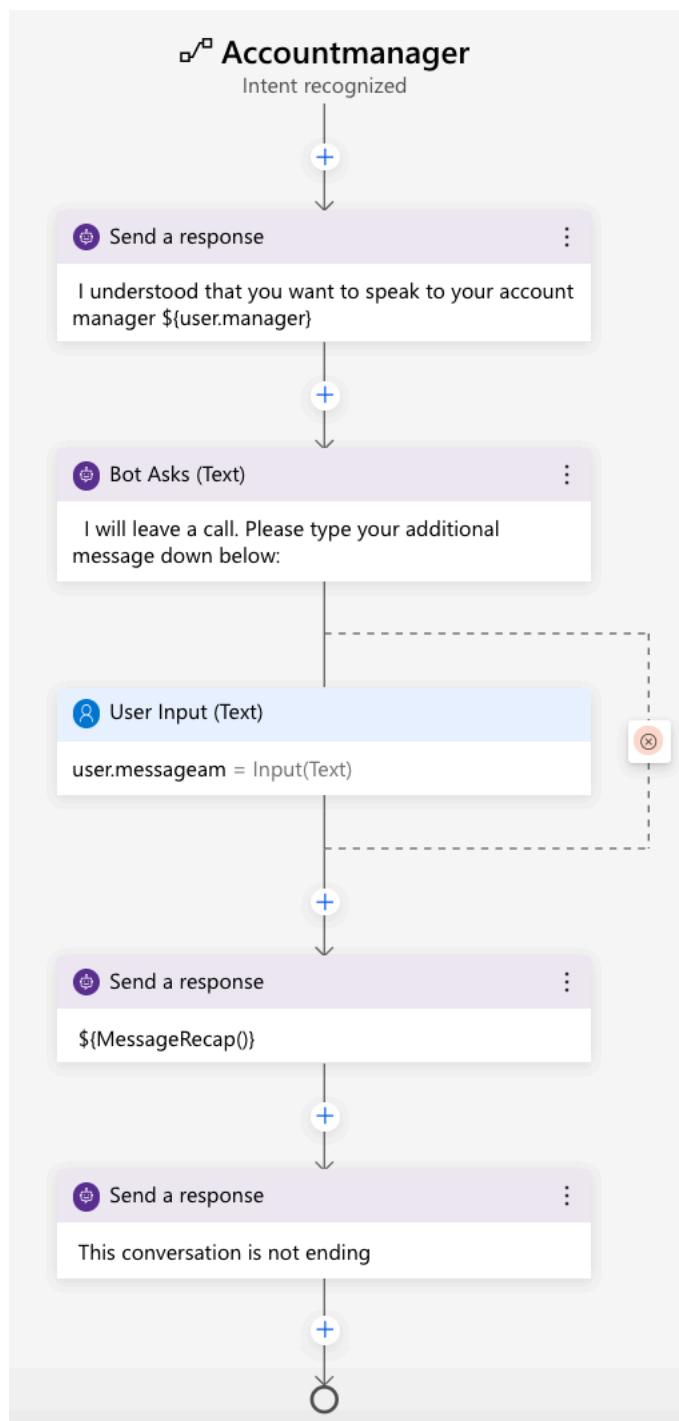


Figure 23. Accountmanager-dialog. This start when the employee types that they would like to speak with their account manager.  
(Intent: Account manager)

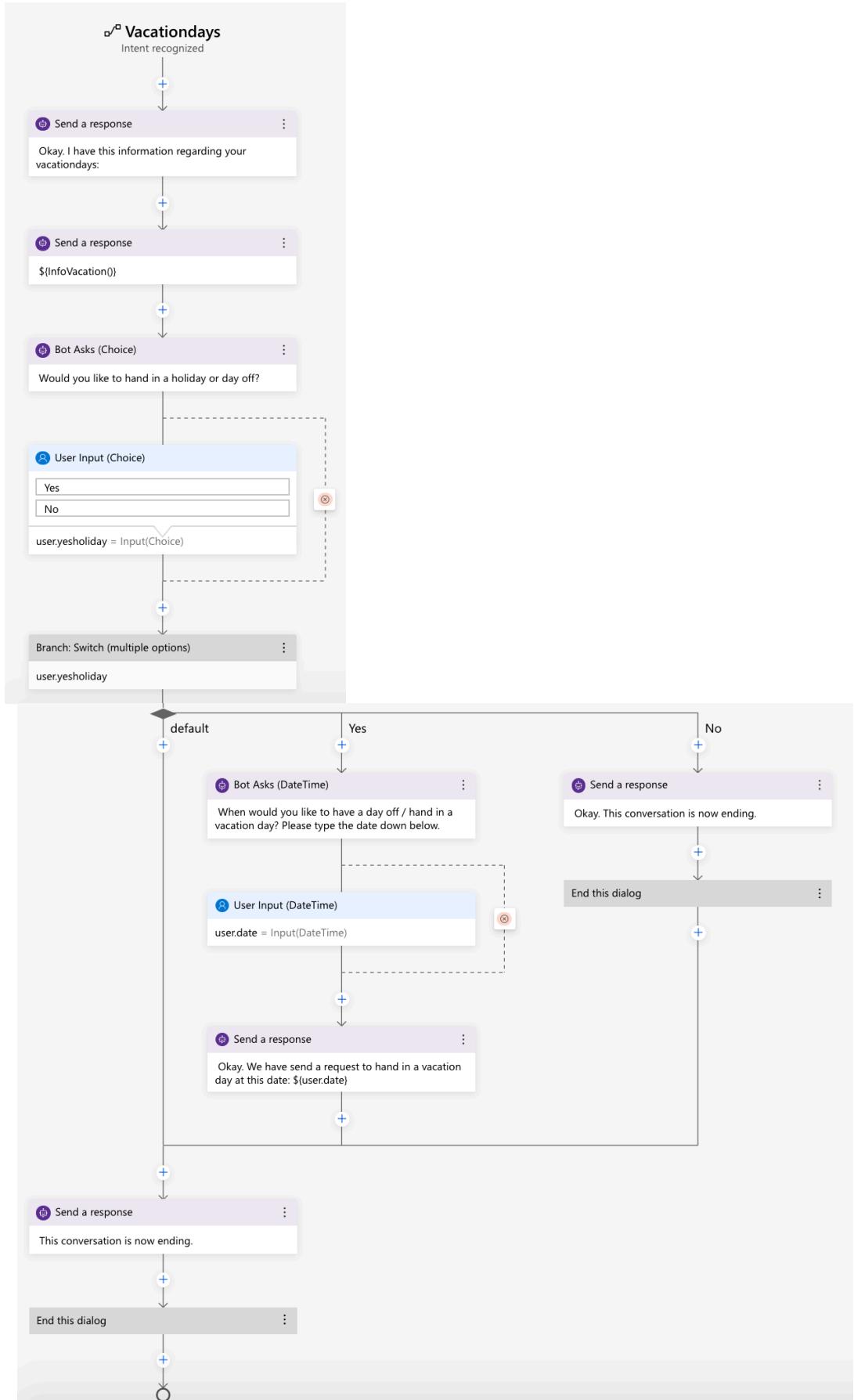
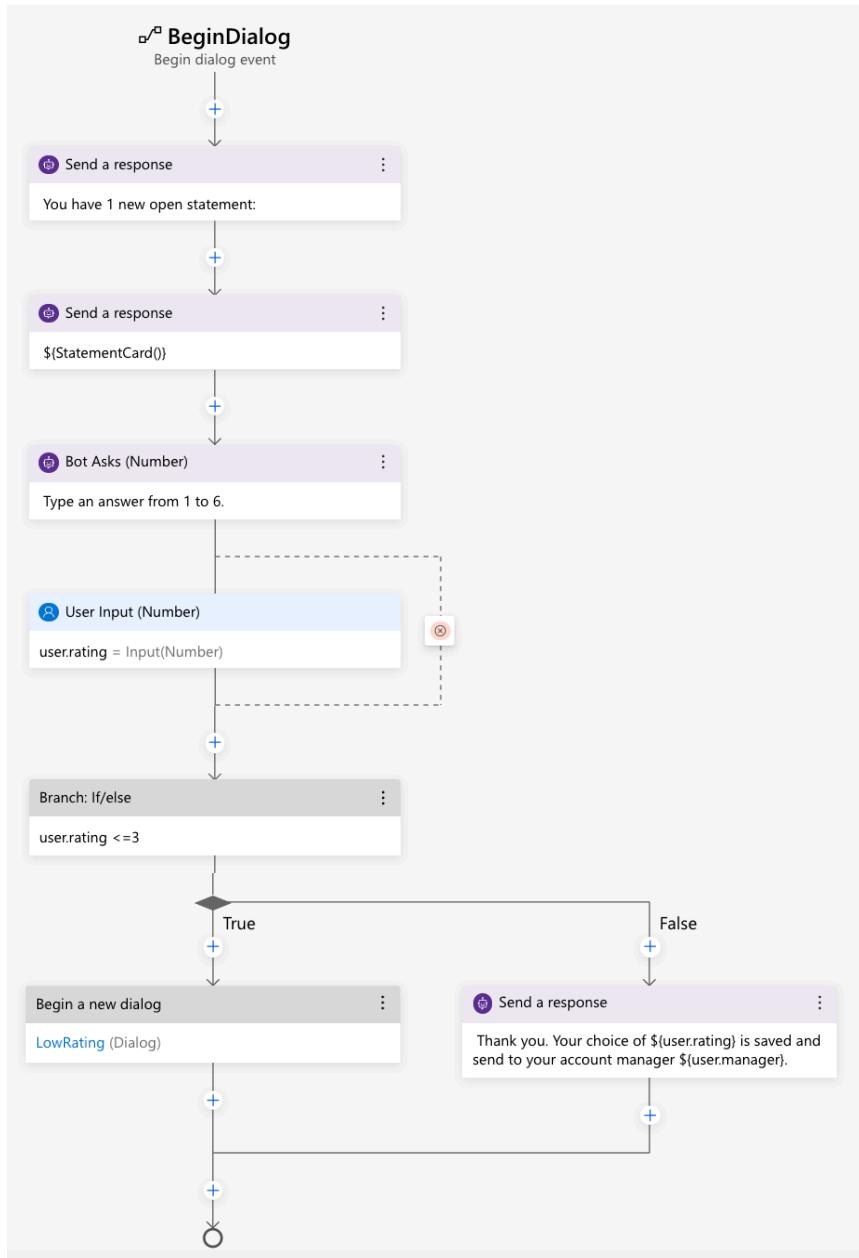


Figure 24.Vacation-dialog. This dialog starts when the employee types that they would like to see how many vacation days they have left, or when they would like to hand in vacation days.  
(Intent: Vacation day)



*Figure 25. Statement-dialog. This dialog start when the employee has an open statement to rate.*

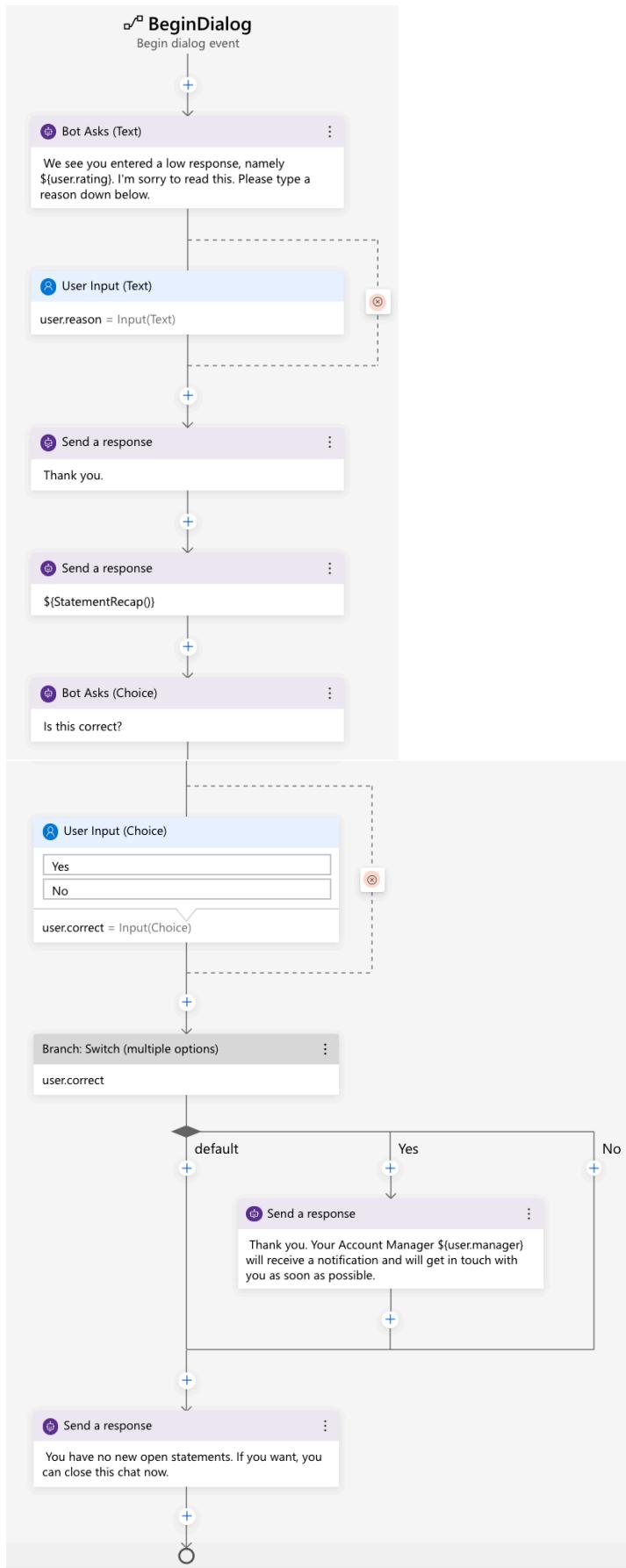


Figure 26. Low-rating-dialog. This dialog starts when the employee rates a statement as low (3 or less).

# Appendix B

## ENTITIES

# WelcomeUser

- Welcome
- Hello
- Sup
- Hi
- Hiya
- Holla
- What's up

# Greeting

- nice to talk to you!

# HelpPrefix

- Sure
- You bet
- Absolutely

# LGComposition

- IF: \${user.name} != null
  - \${WelcomeUser()} \${user.name}, \${Greeting()}
- ELSE:
  - \${WelcomeUser()}, \${Greeting()}

# ChoiceMessage

- IF: \${user.region} == 'South'
  - South
- ELSEIF: \${user.region} == 'West'
  - West
- ELSE:
  - East

#StatementInput

- "I feel I am being paid fairly for the amount of work and effort I give"
- "I find my job enjoyable and fun"

# StatementCard

```
[ThumbnailCard
    title = This week's statement:
    subtitle = Rate with a number from 1 to 6
    text = ${StatementInput()}
    image = https://pro2-bar.myportfolio.com/v1/assets/784a3770-25a8-4071-bc97-a726ed3a2f67/ee9ca49a-abbe-470cbcc3-268b441e6d2b.png?h=dfab6d-9d22d2a1416e385b64c1cd1de2
]
```

#StatementRecap

```
- """
    Here is what I have for your answers:
    The statement was: ${StatementInput()},
    your rating was: ${user.rating},
    and your additional answer was: ${user.reason}.
"""

```

#ProfileRecap

```
- """
    Thanks for updating your profile. You entered the following information:
    Your name is: ${user.name},
    You are in team: ${user.region},
    Your accountmanager is: ${user.manager}.
"""

```

#StatementRecap2

```
- """
    Here is what I have for your answers:
    The statement was: ${StatementInput2()},
    your rating was: ${user.rating2},
    and your additional answer was: ${user.reason2}.
"""

```

#Vacationdays

- 3

#HolidayAllowance

- 117

#InfoVacation

```
- """
    You have: ${Vacationdays()} vacation days left,
    and your holiday allowance is: ${HolidayAllowance()} euro.
"""

```

# MessageAM

```
- """
    We have send the following information to ${user.manager}:
    ${user.name} would like to speak to you.
    Additional message: ${user.message}.
"""

```

## INTENTS

### #Accountmanager

- I would like to talk to my accountmanager
- I want to speak to my account manager
- account manager
- leave call
- call my account manager
- I want to speak with my account manager
- account manager
- Can I talk to my account manager please
- Is my account manager available

### #Cancel

- abort
- cancel all
- do not do it
- stop that

### #Greeting

- hello
- hi
- hiya
- how are you?
- how do you do?

### #Help

- I could use some help
- Help please - help me please
- help me please now
- I do not understand
- I think I need help
- How does this work
- I don't understand

### #Vacationdays

- do i have days for vacation
- do i still have days to go on vacation
- how many days of vacation do i have
- do i have vacation days
- how many vacation days do i have