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Executive Summary

We reviewed GORT Bot's functionality with the popular GroupMe app. During our analysis, we set goals to test the functionality and usability using participants gathered from a survey taken by students from Kennesaw State University. Our test identified several issues that GORT Bot developers will find useful to the development of future updates. These updates should be made immediately to improve the overall user experience of GORT Bot for GroupMe. Our findings show that 50% of the basic assigned tasks failed in one way or another. The information listed in the balance of this report summarizes our findings.

Introduction

We have looked into the GroupMe Overwatch RoBoT (GORT Bot) to test the functionality and usability of the bot with the GroupMe app. The GORT Bot was designed to increase the efficiency and security of large GroupMe chats by using a hierarchical user system with specific permissions that would allow administrators to control and restrict certain user actions. The purpose of our review was to observe users executing commonly used GORT commands and document their actions.

Methodology

Since GORT Bot is a program that has to be installed into a group chat in GroupMe, we determined that it would be best to test it using a cognitive walkthrough. This walkthrough was based on a persona of an average student and is based off of an experience that a student would have to go through. This section will discuss how and why we created the methods and procedures used to perform the cognitive walkthrough for GORT Bot.

Persona

When we created the persona, we modeled it after a typical college student. We chose this route because the main users of GroupMe are students and GORT Bot could help them moderate and keep their groups in check during group projects. Below is the persona we created for the walkthrough.

Our persona is Michael Stevenson, 21, and currently enrolled at Kennesaw State University. He is working towards a degree in Business Management. He would like to use GroupMe to help communicate and monitor large groups with the assistance of GORT Bot. Michael would be using GroupMe and GORT bot on his smartphone or computer to communicate with group members. While in school, Michael has been added to groups, but he has never managed a group. The idea of GORT bot sparks interest since using the commands would maximize efficiency and control large groups.

Scenario

After developing a persona, we created a task based and goal-oriented scenario. This scenario encompasses a typical college student's experience with GroupMe and using it for a group project. This also fits our persona and will help our users understand the intended purpose of testing GORT Bot. Below is our scenario that was created for the walkthrough.

A current college student is in a group project for his class. He has four other students in his group and has been elected as the group leader. He heard from a classmate that GORT Bot would help

him manage the group and keep the chat room secure. After he leaves class, he decides to give GORT Bot a chance to see if it would be worth using.

Test Goals and Tasks

Using the persona and scenario, we determined the goal of our cognitive walkthrough. We then created a task list that would help the user achieve the goal. Below is more detail on how we determined the goal and the tasks.

The end goal of the test was for the user to successfully install GORT Bot and use it to manage a group within the GroupMe app. The reason why this test goal was chosen is because recently the GORT Bot developers noticed a decline in use of the bot—and they wanted to know why this sudden decrease was happening. The developers thought the overall issue seemed to stem from the usability of the program. Conducting a usability test, with a set list of tasks, would help identify the disconnect between the user and the bot itself.

The tasks for the usability test were developed by following the user manual to determine the common commands that would be used when moderating a group in GroupMe. The task list formed a logical order as follows:

1. **Create a Group in GroupMe**
 - o Users are prompted to login with their GroupMe account and create a new group.
2. **Google GORT Bot**
 - o Users Google GORT Bot to find its website.
3. **Install GORT Bot**
 - o Install the GORT Bot in GroupMe through the website's activation portal.
4. **Re-name the Group: Final Project**
 - o Using GORT commands, re-name the group to “Final Project.”
5. **Set a Security Level**
 - o Using GORT, set the security level for the group.
6. **Kick a Member**
 - o Kick a member with the GORT command.
7. **User Hierarchy: Promote and Demote a Member**
 - o Using GORT commands, promote one member and demote another member.
8. **Allow Adding Members**
 - o Use GORT to allow adding members to the group.
9. **Re-add a Kicked Member**
 - o Re-add the previous member the user kicked in Step 6.
10. **Send a Message to the Group**
 - o Using GORT commands, send a message to the group.
11. **Uninstall GORT Bot**
 - o Finally, use a GORT command to uninstall GORT Bot from the group.

Participants

To gather our participants, we sent an email to students at Kennesaw State University. The email included a brief description of what the test would consist of, the time it would take to complete, and an incentive of snacks and beverages. Our goal from sending the email to KSU students was to

find students who were similar to our persona. We had some students email back and we scheduled our testing on April 17 at 11-1:45pm.

Before we began testing, we made sure to our participants with our pretest questionnaire. The questionnaire would confirm that they were a student at KSU and that they were between the ages of 18-30. We also asked if they had experience with GroupMe and GORT Bot. We found that most of our users (2/3) had never heard of GORT Bot but all of them had used GroupMe for group projects. Once we were finished with the screening and questionnaire we performed the cognitive walkthrough.

Performing the Walkthrough

After we gathered our participants, materials, and technology needed to perform the walkthrough, we began testing. This section discusses our typical interaction with the users and how we performed the walkthroughs.

Warm Welcome

Each user was warmly welcomed into the lab and introduced to the team. Once they were seated, the moderator let the user know the purpose of the walkthrough and what they would be doing for it. They were informed that they would be recorded both visually and audibly and were given the appropriate forms to sign that documented their consent. No user waived their right to be recorded. Once the forms and the post-test questionnaire were filled out, the user was given a list of group members to add to their group in GroupMe and a list of common commands they would use to moderate their group with. We gave each user the same manual available on the website that included the command syntax they would need to complete the tasks. The table below lists the members of our team.

Table 1: Our Team

Our Team	
Moderator	Tyler McGinnis
Note Takers:	Dan Marchildon Sam Meigs
Observer:	Desmond Johnson
Technician:	Phoebe Williams

The Walkthrough

Once the user was prepared, we gave them the test phone and began the walkthrough. The moderator explained the importance of the “think aloud protocol”, and reminded each participant to verbally explain their actions. Each user worked through their tasks as our moderator made sure to stay close by. Our team diligently recorded notes for the moderator and the user, and the technician was available to answer any questions as needed. Once the users completed the tasks, we

offered them snacks and beverages in return for their effort and participation. Below, we discuss the results that were found from these tests.

Results & Discussion

When we performed the cognitive walkthrough, we tracked multiple factors to gain insight on how to improve GORT Bot. GORT's purpose is to improve the efficiency of managing and organizing a GroupMe group. From its purpose, we determined that tracking the task completion success rate and task duration would help determine what would need to be improved. Another element we tracked was how the user responded to GORT's syntax, or as we call it, command comprehension. Once we gathered and reviewed the data, we assigned severity ranks to reoccurring issues to provide useful recommendations for GORT.

Task Completion

Task completion is an important part of GORT as it is how the users manage their GroupMe groups. If they are not able to perform them in an efficient manner, they will not use GORT and move on to another chat managing program. The following section discusses how we define successful and unsuccessful tasks and what the results of the test were.

Successful vs. Unsuccessful Task

Our definition of a success is when the user does not have any difficulty performing the task. This means that they did not ask for assistance and they were able to complete the task in a reasonable amount of time (1-2 minutes).

We defined unsuccessful as when the user has more than one question about the task and if it takes them more than 3-4 minutes to complete it. The purpose of GORT is to be efficient and easy to use, so if the user can not complete common commands in a timely manner, then opportunities for improvement exist.

The Results

As seen from the data in tables below, each user failed to complete task 7 and one of them failed tasks 4, 5, 6, and 8. After compiling this data, we performed root cause analysis to help determine the reason why each user was unable to complete the given tasks. Our data shows that the instruction manual was the main cause of the failures. As seen above from our user's experience, this poor manual design and layout drastically increased the user's task completion time and hindered their ability to comprehend the commands.

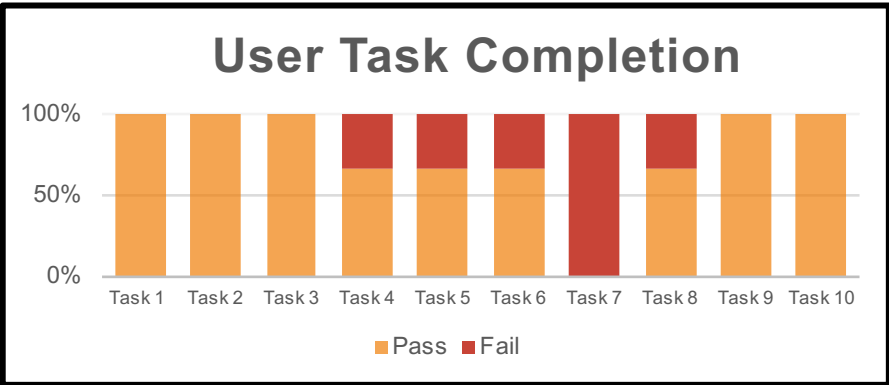


Figure 1: User Task Completion

User 3's Experience: Passing on a Task

User 3 was slowly slogging through the test's task list. At every turn he seemed to be running into problems. Step 6, "Kicking a Member", was proving particularly difficult to figure out. User 3 flipped through the GORT Bot manual, lightly sighing while he searched for the right command. He attempted to type in the command "Gort kick @Meigs." The command failed, and his shining optimism faded from his eyes. He tried again with another command, this time with no "@" symbol. Failure had become all too familiar at this point. In one last ditch effort, he attempted the command "Gort kick name @Meigs." If the definition of insanity is doing the same thing over again and expecting a different result, User 3 was now insane. He put down the phone in disgust and frantically searched through the GORT Bot manual for an answer. In a sudden surge of malevolence, he spotted the ban command. If he couldn't kick the user himself, he would ban them from the group with extreme prejudice. SUCCESS! He looked up from the phone with a grin. *User Meigs was banned from the group.* "This document is hideous!" said User 3. He would never figure out how to kick members from GroupMe.

Task Completion Time

Each user in the test was given the same list of commands to complete. When we created this list, we based it on common commands that a group admin would use to moderate a group with. We assumed that each task would only take a minute or two to complete, and for that time to decrease as each user completed each task and their confidence in the system increased. The graph below illustrates each assigned task, and the average completion time for each user vs. our projected completion time.

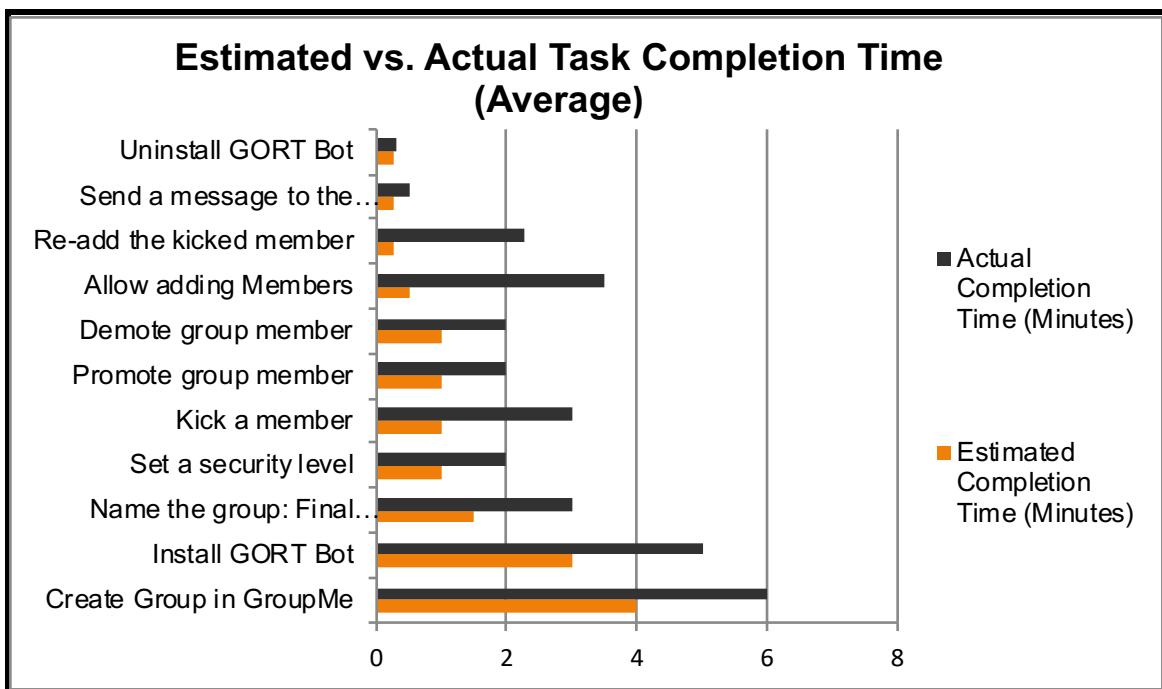


Figure 2: Estimated vs. Actual Completion Time

As seen above, our expected completion time was drastically different than that of the actual task completion time. We developed our expected times based on the typical amount of time to manually

perform the task in the GroupMe app, and added 45% as a standard margin of error for our sample size. (Measuring) The actual completion times far exceeded our estimated times for every task. During the test, we observed the users struggling to accomplish various tasks. Whenever questioned by the moderator, they often responded with “I don’t understand what this means”, or “I cannot find where this command prompt is”. Based on their communications while using the think aloud protocol, we were able to determine that the cause of their struggles was due to the structural and formative issues with the manual.

Command Comprehension

During the survey, our participants frequently made comments such as, “I am not sure how to do this”, or “where do I find that command”. The instruction manual lacked cognitive structure, and a systematic process; nowhere did it say to perform a certain command in order to achieve a goal, and the next command for the next goal. In addition to the poor layout, the manual suffered from multiple misspelled words and inconsistent capitalizations. Examples include “gort” vs “GORT” vs “Gort” and “read” instead of “re-add”. We attribute the unorganized nature of the manual oversight to have negatively affected the entire testing process. Each failure to complete a task was directly linked to the lack of clarity in the manual. Below is a story that shows User 2’s experience of the seventh task: Kicking a Member.

User 2’s Experience: Feeling Powerful

User 2, a seemingly humble man with no penchant for power over others, found himself testing the GORT Bot. This usability test would end up revealing his true nature. He was familiar with the GroupMe app, and he was getting familiar with the GORT Bot itself. Upon reaching Task 7, User 2 was tasked with choosing group members to promote and demote. User 2 used the GORT command to promote Meigs to “Trusted User.” He then demoted Meigs immediately afterwards. His hands started to shake as he held the phone, staring into the GroupMe chat at what he had just accomplished. He successfully promoted and demoted Meigs. User 2 gave power and took that same power away in an instant. In this moment, he felt *powerful*. Towards the end of the test, he had to choose five cards from the Product Reaction Card stack. He felt compelled to make one of his choices “Empowering,” due to his GORT experience.

Main Issues

The instruction manual was provided online, and gave all of the commands that could be performed by GORT Bot. We noticed that there were several flaws in the design and layout of the document, including the mis-capitalizations of certain words, and lack of a hierarchy of commands. We noticed that each user struggled to find on the document where to begin, and how they would know if their command prompt was successful. Also, there was no apparent structure of the data, and it lacked page numbers to maintain order and flow. We have used four “issue” categories to rank issues with the software and have listed their definitions below.

- **Catastrophic**- Overall system failure
- **Major Problem**- Major issues with system functionality
- **Minor Problem**- Minor issues with system functionality
- **Cosmetic**- Stylistic issues

We have taken the most common issues discovered in the test, and have categorized them by problem type below.

Table 2: Severity Ranks

Issues	Severity Rank
User Manual	Catastrophic
Command Syntax	Major Problem
Installation Process	Minor Problem

User Manual

After numerous complaints, it was clear that the instruction manual was the source of most of the test's issues. The spelling and inconsistent capitalizations prevented most of the users from completing the tasks. We have determined that this ranks catastrophic and needs to be fixed as soon as possible.

Command Syntax

Command syntax made up for the second most issues observed during the test. Our users noted many problems and inconsistencies with the command structure that is programmed into GORT Bot. We have defined this as a Major Problem, as many of the users were unable to complete several of the tasks.

Installation Process

The installation process proved to be difficult for most of our users. The instructions are posted on the website, but are difficult to follow. We have coded this as a Minor Problem, and should be addressed after the other two issues have been resolved.

Recommendations

The above observed deficiencies within GORT Bot proved to be detrimental to its overall effectiveness. Our team has developed a list of recommendations and implementation steps for these problems and has summarized them below.

1. **Reformat and update the user manual with more descriptions and examples**

This is by far the biggest problem with GORT Bot—the user manual. The users we tested universally complained about the manual's lack of clear organization and its lack of shown examples of how to input commands. Users also had trouble with finding the right command they needed for the action they wanted to perform.

The user manual should be reformatted and updated into a clearer, more user-friendly format. Specifically, there needs to be screen-captured examples of command inputs. The users we tested all agreed that showing visual examples of the commands and how to use them correctly would help with usability.

The actual command list also needs to be changed. Currently, it's a block of bold text with a corresponding description of the command—effective use of white space would work well here; the text, otherwise, is too close together and hard to pick out the commands you need. Commands should be grouped by specific actions and given enough room on the page.

2. **Within the manual, clearly define rules for the commands(syntax)**

Users during testing had major problems with inputting the correct commands for the actions they were trying to accomplish. They would try multiple times with multiple ways to write the command—some gave up and moved onto other steps.

Going into more detail about how to exactly start a command line and what symbols and keywords to use would be extremely helpful in the manual.

3. Make the process of installing GORT Bot clearer and defined

GORT Bot is installed into a GroupMe chat through an activation portal on its website. Throughout our testing, we ran into problems with users still being logged in through the activation portal, preventing other users from installing GORT Bot into their groups.

A clearer installation page, besides a wall of text, could go a long way with helping users access GORT.

4. Define what the program is and make it easier to understand

Users that were tested found it difficult to find the actual purpose of GORT Bot. A lot of the users thought the program was unnecessary and made things more complex than the default GroupMe settings and actions.

GORT Bot could use more definition in terms of separating itself from GroupMe functions and making its actions more understandable. Most of these changes can easily be made with a better user manual, which is also an upcoming recommendation.

Using the recommendations above, we believe that GORT Bot could become a far more effective and user-friendly program. The disconnect that many users experienced during our testing could be alleviated with the right changes to GORT Bot and the manual.

Conclusion

We thoroughly enjoyed user testing the GORT, and working to improve their solution to group chat management. It is our hope that the information found in this report is well received and implemented, and that the GORT team is able to document more downloads in the upcoming months. We look forward to working on future projects.