Improving the user experience of placing group orders on DoorDash

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1 INTRODUCTION

DoorDash is an online food delivery platform that primarily operates in the United States, Canada, Australia, Japan, and Germany. It has a feature that allows a bunch of people to place a group order where one of the group members creates the group order (hereinafter referred to as the "order creator"), invites all their friends, and pays for the whole order by themselves at the end. However, we found some significant limitations with DoorDash's group order functionality.

First, it doesn't let people in the group order to order food from multiple restaurants. Second, only the promo codes available to the order creator can be applied to the group order to get a discount. Third, it is not possible to share individual food items with others. For example, if a user is unsure that they'd be able to finish a food item by themselves, they might want to share it with others. Fourth, the order creator has to pay for the whole order and then use third-party applications like Splitwise to settle the bill amount among the group members.

Based on our user research, we came up with several ideas and approaches to addressing the limitations discussed above. We let each user choose the restaurant they want to order from in our prototype. It is important because everyone has their favorite restaurants, and it does not make sense to allow the order creator to choose just one restaurant that they like for the entire order.

We designed a combined cart named the "group cart." The group cart allows each member to see what everyone else is ordering while also allowing any user to share a food item that they like with any other group member. Users can orally discuss what food items they would like to share, and once they're done, they can share the items within the group cart. Sharing items here would prevent any bill-splitting issues later on.

Next, and the most important user need, was to address the ability to split the bill of a group order before payment. Hence, we designed a UI where each user (including the order creator) would only need to pay for the items in their cart. Our option is better than the current system as this eliminates the need for using third-party applications to settle the bill amount.

Also, on the checkout screen for every group member, we introduced the feature of sharing promo codes with the order creator. Because most codes can only be used a limited number of times, we let the user decide which promo code they would like to share with the order creator. Sharing promo codes is also necessary because the best promo codes are only available to DoorDash subscribers. Thus, if the order creator is not a DoorDash subscriber and some other member is, it would not be possible to apply the best discount on the group order.

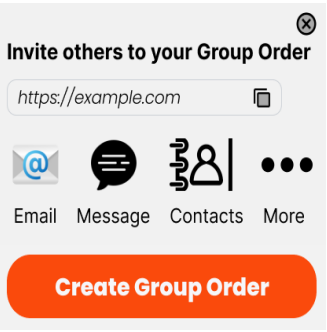
Finally, it might be possible that someone cannot pay for their order because their debit or credit card is having some issues. In such a situation, we let a user select one of the group members to pay for them at their checkout screen.

2 USERS

Our target population is first-year undergraduate or graduate students and international students. They are most likely to place group orders and have some limitations with their payment methods (ex - just one credit card with a low credit limit) which might necessitate the need for payment by someone else. During our interviews, we found that all of our participants stated the following user needs: split the bill within the app, apply the best promo code to the entire order, share a food item with others, invite people easily to the group order, and ask other group members to pay for them if they cannot pay for some reason.

We interviewed three participants for user research purposes. One interesting insight was that they often needed similar features, albeit differently. For example, some of them mentioned that there should be an icon that a user must click once they have finished editing their cart. The resulting color change in the icon will let the order creator know that a particular user has finished adding items to their cart. However, another participant pointed out that while there should be an icon for this purpose, it should also be possible to undo its click since a user might have clicked it mistakenly. We balanced all of the suggestions and feedback from our interviewees and used those that satisfied most of our users' needs.

3 PROPOSED APPROACH AND UI



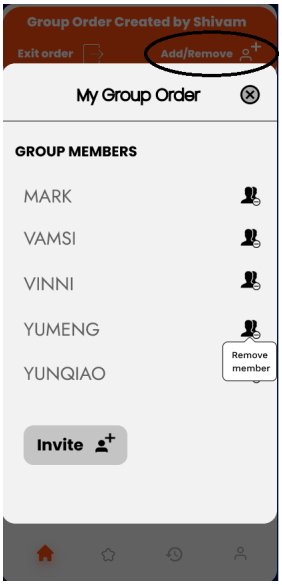


Figure 1 (left). The invite page shows users can invite people by Email, message, or directly add them from the contacts.

Figure 2 (right). "My Group Order" pop-up. It shows the name of current group members in group order and the invite button that enables group members to invite others.

Our first key idea was to simplify the process of adding people to group order. For this, we added a "Contacts" feature. After creating a group order, a user will have the option of inviting others by sharing a link using other apps or by using the built-in "Contacts" feature. After clicking on the "Contacts" button, a user would see the list of their contacts who are also using the DoorDash app. Users can then select people from this list to add them to their group order. This feature, thus, minimizes the hassle of sharing the group order link by using other apps like SMS, WhatsApp, etc., and adds more flexibility to the app.

Now, it did not make sense to restrict people from being added to a group order after it has been created. So we ensured that any member could add more people to the order even after the order had been created. To achieve this, they would tap on the "Add/Remove" button at the top and click on the "Invite" button in the resulting list. The resulting list will also have a remove icon in front of the name of every member. This icon will only be visible to the order creator, and they will be able to remove anyone by clicking on this icon. Also, to give our users more control and freedom, we have made it possible for any group order member to exit the order anytime by clicking on the "Exit Order" button at the top. This action will also empty their cart (if it has any items) and take them back to the app's home screen.

Next, we discuss our app's most novel idea, which is to let users share a food item. We implemented this by putting a share icon in front of every food item. The design of this icon makes its purpose abundantly clear. By tapping this icon, a user would see a pop-up window displaying the group order members' names next to checkboxes. The user can select one or more members, and the item's cost will be automatically split among the people with whom that item was shared. Figure 3 (left) shows what happens when someone wants to share a $10 item with another person. The system indicates the amount of money payable by each member after one person has been selected.

Our third key idea is getting the best possible discount for the group order. Right now, only the order creator can apply a promo code to group orders. Since DoorDash offers the best promo codes only to its subscribers, we now have a usability problem. Every time a non-subscriber creates a group order, it is impossible to get the best discount, even if a subscriber is otherwise part of the group order. To get the best discount, a group of users must always ask some friend who has a DoorDash subscription to get the best possible discount for their order.

To overcome this usability problem, we introduced the feature of sharing promo codes with the order creator. By tapping on "Share Promo Code" on the checkout page, all users can now share a promo code with the order creator. The order members can select the promo code from a pop-up window that offers the best discount and share it with the order creator, as shown in Figure 4 (right). The order creator can then select one of the promo codes from their promo codes or the shared codes.

While designing our prototype, we adhered to some good design principles [1]. We summarize some of them here. We maintain the visual hierarchy of our app by consistently using different font sizes for the page title and other text. Again, for better visual hierarchy, we use bright red color for primary buttons like "Share" or "Create Group Order" and grey for other buttons like "Cancel", as shown in Figure 1 and Figure 4. We also follow the principle "less is more" by letting the user make only a few choices while sharing a food item, as shown in Figure 3 [2]. It ultimately improves the learnability of the app. To provide our users with the right amount of control and freedom, on each pop-up screen, we always have a close button at the top-right corner allowing the user to exit the current page any time they want. Also, the exit button is always displayed at the top allowing a user to exit the order easily at any time.

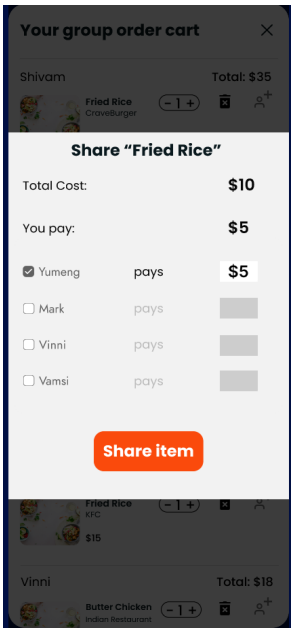


Figure 3 (left). The split bill pop-up.

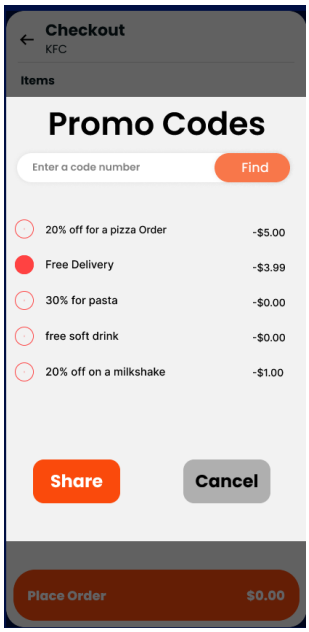


Figure 4 (right). The promo code sharing pop-up.

4 ITERATION

After the second poster session, a lot of the feedback we received was concerned with the number of clicks needed to share a food item. Hence, we ensured that a food item is shared on just one screen, i.e., the screen displayed right after clicking the share icon. In the new version, we would only need to select the names of the people we want to share our item with, and the shared cost for everyone would be calculated automatically. We learned that it is important to keep sharing an item as simple as possible. Hence, in our new prototype, a user does not have to enter the amount they will pay manually, and the number of screens and clicks gets reduced as well.

Another change we made deals with the option of letting a user choose who's going to pay for them. Based on the feedback we received, we learned that things related to each other must appear on the same screen. Thus, we moved this option to the checkout screen (where the payment method is selected) rather than the screen before the restaurant selection.

We also added tooltips (small hints) below icons that might appear confusing to a new user. In the real mobile app, tooltips get displayed when we long-press an icon. But for our prototype, tooltips are displayed when we hover our mouse over them.

The final change to our prototype lets the order creator remove someone from a group order. This feature becomes necessary when someone who has already joined a group order gets busy with something else and forgets to quit the group order. Thus, it is best for the order creator always to be able to remove any member from the group order.

5 USAGE SCENARIO

The user initiates the process of creating a group order by clicking on the "group order" button on the home screen of the app. A pop-up on the screen shows several ways to invite people to the order, as shown in Figure 1. The user clicks on contacts and adds two of their friends to the order. Finally, the user taps on "Create Group Order" to create the group order. Even after the order has been created, group members have the option to add more people to the group order at any time. Additionally, the order creator can also remove any member. Next, the user selects a restaurant and adds items to their cart. Once the user is done adding items, they tap on "View Group Cart." On this screen, the user decides to share "Fried Rice" with their friend by clicking on the share icon corresponding to "Fried Rice." Next, a pop-up displays the total item price and the price payable by every person with whom the item is shared. The user chooses Yumeng, and the prices are updated, as shown in Figure 3. Next, we see Yumeng's checkout screen. He is unable to pay for himself because of some issues with his credit card. So, he requests the order creator, Shivam, to pay for him; Shivam accepts his request after a while. Yumeng then shares a promo code with the order creator. Next, we see the order creator's checkout screen. He applies the promo code that Yumeng shared, and the resulting discount applies to the whole order. Finally, the order creator places the order by tapping on "Place Order."

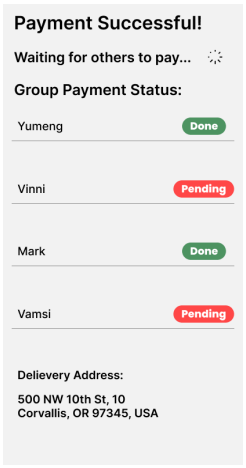


Figure 5. (left) The payment status screen.

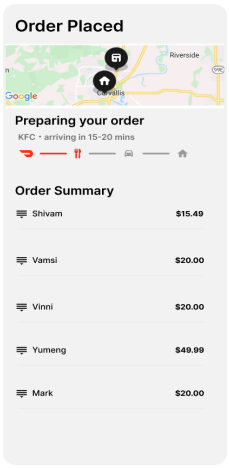


Figure 6. (right) The final screen.

Now, he sees the screen that displays the payment statuses of everyone in the order, as shown in figure 5. Once everyone has paid for their order [3], the final screen is displayed on everyone's phone, as shown in Figure 6. It displays the order status and the order summary of everyone in the group order.

The video link:
https://drive.google.com/file/d/11HEEIUlqBlXvfvQf5eXN-yPiITJDYb8U/view?usp=sharing

6 DISCUSSION

One of the features that we would like to work on in the future is the ability to inform the order creator that every member has finished editing their cart. One of our participants suggested this, but we decided not to include that in our demo since we do not have a perfect solution for this problem. Initially, we thought that there could be a grey "Done" icon for each member that, when clicked, would turn green and inform the creator that a particular user is done with their cart. However, after talking about this idea with other users, we learned that there seems to be a possibility of a user undoing this selection if they want to go back and add more items or if they want to remove some items from their cart. Also, we thought that it should be possible for someone who is not sharing any item to proceed to the checkout screen as soon as they are done with their cart. Hence, we need to conduct more interviews to decide on the feasibility of this feature.

Another candidate for future work is the ability to set a time limit from the checkout screen to the order confirmation screen. One of our participants mentioned that we need to set such a time limit because nobody wants to wait indefinitely for a group member to finish their payment. Although we did discuss this feature, we could not agree on a good implementation. At first, we thought that this feature was unnecessary since everyone in the group would also be in the same room. Hence, there would be no need to set such a limit. But later on, after we talked with our target users, we found that all the group members might not be in the same room in some cases. For example, some people might be on their way to the home of the order creator before they make the payment. Hence, it sounds reasonable to include this feature. Also, someone can take a longer time to finish payment than others. Hence, we require more data from interviews to pick a reasonable time for everyone to finish the payment.

One limitation of our project is the tip system. According to the interviews we conducted at the beginning of the term, users wanted to set their tips individually and discreetly. Their argument was that tipping culture is mostly an American thing. So, if some group members do not tip, they might be judged by their American friends. Also, we have the "Ask a friend to pay for you" feature on the checkout screen. If we ask a local friend to pay for us, they might also be able to know what amount we tipped by seeing the order summary at the end. One possibility is to make the order summary private. But if you have paid for someone else, it does not make sense to do this. We will try to address this limitation in the future.

7 CONTRIBUTION STATEMENT

Shivam: Designed and implemented the improvements to our prototype; drafted a significant portion of this paper.
Yunqiao Cai: Wrote proposed approach and UI part, and posted pictures. Created the two videos.
Yumeng Wang: Improved the prototype according to the feedback and helped with the document.
Vamsi Karnatapu: Helped in developing and editing some sections of the paper.
Ginjala Vinoothna: Helped in writing the Introduction section and edited the report.

8 REFERENCES

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