BillChop

Divide and conquer your receipts in three easy steps

Capture

Take a photo of your receipt, and we'll automatically generate a sortable list of the items you've purchased.

Select

Select each friend you want to split with and what items they're responsible for. Items can be split among one friend or many.

Charge

Seamlessly request payment from your friends using our built in Venmo feature. All they need to do is accept.

BillChop Team Members

Peter Kaplan
- pkap
- Key strengths: organization, app naming and slogans

Joeseph Kunnath
- jmkunnat
- Key strengths: back end development

Ramana Keerthi
- Ramanak
- Key strengths: building web apps

Katie Matton
- katiemat
- Key strengths: business strategy and marketing, machine learning

Will Stager
- wstager
- Key strengths: design, front-end development

Mazen Oweiss
 moweiss
- Key strengths: front-end development (android), interviewing people

Sagar Singichetti (project manager)
- singichs
- Key strengths: front-end dev, React, motivating people

Usability Test Results Summary (Qualitative Pros)

- Most users immediately noticed the button to create an account on the login screen, and were able to navigate through the create account and login process easily
- Users were easily able to retract their steps and go back and redo previous steps if they felt they completed something incorrectly (for example, if they didn't add an item they meant to or forgot to add tax)
- Users were able to quickly figure out how to assign and unassign items to people
- Users generally found that it was easy to add and delete items from the receipt
- Users thought that editing items' names and costs was simple

Usability Test Results Summary (Qualitative Cons)

- Once a user has added a contact, it is hard for them to see if they successfully added the contact because the list of contacts that drops down from the search dropdown menu doesn't go away
- Upon being instructed to select a contact to add to a group, it took users multiple clicks to realize they had to select the green "✔□" mark on the left side of the contact icon
- It wasn't clear to users how to add or edit tip in a purchase
- Users were not easily able to identify that they had the ability to add multiple people at a time by selecting groups instead of selecting multiple people individually
- Users weren't able to fully understand what the photo capturing outline feature could do for them, and often had to retake the photos more than once to capture all items on the receipt
- Upon creating an account, the fact that the initial screen with transaction history was blank confused users
- Users found that the font on the home screen was small so it was hard for them to figure out how to navigate to both the group page and the capture page

Usability Test Results Summary (Quantitative)

- 80% of users were able to create an account in a reasonable amount time with few clicks
- 100% were able to create an account easily without outside direction after reaching create account screen
- It took 93% of users 1-3 clicks to assign / unassign an item to a person
- 100% can add and delete items in a reasonable amount of time
- 87% of users were able to edit item totals and names easily
- 80% of users struggled to add people to the receipt (didn't click in the right spot, didn't immediately see where to search, etc.)
- 93% of users had difficulty editing the tip and tax associated with the receipt
- 87% of users showed confusion when trying to scan a receipt
- 87% of users hesitated for a significant period of time when attempting to navigate to the capture screen

Numerical Results: Paying for a Group Purchase

- For 80% of participants, 75% + of the items on the receipt were correctly identified after taking a taking a photo 1-3 times
- For 30% of participants, 100% of the items on the receipt were correctly identified after taking a photo 1-3 times
- It took participants between 35 seconds and 3 minutes and 15 seconds to start at the home screen and produce an itemized list that they are satisfied with; the average time it took was 2 minutes and 5 seconds
- It took participants between 3 seconds and 10 seconds to reach the receipt scanning screen
- It took 73% of participants 1 click to navigate to the receipt scanning screen; Other participants took 2-3 clicks to navigate to the receipt scanning screen
- Across all pictures taken, on average 80% of the receipt was captured in the photo
- 20% of photos taken included content other than the receipt
- On average, participants took 2 photos before they were satisfied with the photo taken

Numerical Results: Paying for a Group Purchase

- It took 3 seconds on average for participants to navigate from the capture screen to the itemized list screen
- It took all participants 1-2 clicks to navigate from the capture screen to the itemized list screen
- It took participants 1 click on average to edit an item's name and cost (outside of typing in new value); both of these tasks took 1-5 seconds
- It took 93% of participants 1-2 clicks and <= 3 seconds to delete an item
- It took participants 3-5 clicks (outside of typing) to add an item to a the receipt; it took participants an average of 6 seconds to add an item to the receipt

Numerical Results: Calculating Amounts Owed

- For 93% of participants, the amounts owed by each person were calculated correctly. One user noticed that the cents had been rounded in a way so that the total amount owed by each user did not equal the total purchase price.
- Once reaching the person assignment page, 20% of users returned to the itemized list page to make an adjustment.
- It took participants between 20 seconds and 3 minutes and 23 seconds to complete the people assignment page to satisfaction, with an average time of 1 minute and 42 seconds. These times varied greatly based on the number of items and users in the transaction.
- The average number of clicks on the person assignment page per item was 9.
- The average number of clicks on the person assignment page per person was 7.

Numerical Results: Calculating Amounts Owed

- On the itemized list page, it took users an average of 12 seconds between finalizing the list of items and finalizing the totals (tip and tax). Largely, the short time was due to most users not needing to add those values, as users who tried to edit them took as long as 41 seconds.
- Users took an average of 8 taps to edit tip and tax, compared to the expected 4.

Numerical Results: Notification of Amounts Owed

- It took 93% of participants 1 click to notify people of the amounts that they owe after completing item assignment; it took 7% of participants 2 clicks
- It took between 5 and 20 seconds for the notifications recipients to view the amount owed text after it was sent by the receipt owner
- We had 20% of participants go through and mimic completing the payment; for these participants it took 50 seconds on average to navigate to another app and complete the mobile transaction
- It then took the owners of these receipts on average 1 minute and 20 seconds to navigate between Venmo and BillChop to verify that all bill splitting members paid the correct amount

Numerical Results: Splitting Items Amongst Group Members

- It took participants between 37 seconds and 2 minutes 48 seconds to successfully create a group with some of their contacts starting off from the home page with an average of 1 minute 13 seconds to complete group creation
- It took participants between 22 seconds and 1 minute 29 seconds to successfully modify item splitting for receipts they split in the past; 70% of participants were able to complete this in under a minute
- 93% of users were able to easily assign items to fellow group members within the first two tries
- Upon being instructed to select a contact to add to a group, it took users approximately 5 clicks to realize they had to select the green "✔□" mark on the left side of the contact icon
- The average number of clicks on the item assignment page was 7
- The average number of clicks on the group creation page was 11

Numerical Results: Splitting Items Amongst Group Members

- Over 70% of participants found selecting contacts for group member addition and removal to be the most tedious process when splitting items
- About 90% of users did not immediately notice that you could modify item prices and tip on a receipt they had scanned, and needed extensive instruction to do so

Numerical Results: Receipt History

- It took 73% of users only one attempt locate the receipt history tab, 26% two attempts, and 6% took three attempts, and a range of 5-30 seconds for the users to do so.
- It took all users one attempt to open up a receipt when asked to do so.
- All users were able to locate the names of the users and the cost associated with the users immediately, taking a range of 3 and 10 seconds.
- 93% of users recognized that the receipts were ordered by date. One user suggested being able to order by highest cost bills.
- Users were able to navigate back to the main receipt history on average in 5-10 seconds and pick out another receipt and read out the correct information of owner, splitters, and items in on average 20-40 seconds

Statistical Summary of SUS Results (1)

- Would use BillChop frequently

  - 20% strongly disagree, 47% disagree, 27% neutral, 7% agree, 0% strongly agree

- Found BillChop unneccessarily complex

  - 0% strongly disagree, 20% disagree, 13% neutral, 47% agree, 20% strongly agree

- Thought BillChop was easy to use

  - 7% strongly disagree, 33% disagree, 40% neutral, 20% agree, 0% strongly agree

Statistical Summary of SUS Results (2)

- Need support of a technical person to use BillChop

  - 0% strongly disagree, 0% disagree, 7% neutral, 47% agree, 47% strongly agree

- Found various functions in BillChop well integrated

  - 7% strongly disagree, 67% disagree, 20% neutral, 7% agree, 0% strongly agree

- Found too much inconsistency in BillChop

  - 0% strongly disagree, 7% disagree, 20% neutral, 47% agree, 27% strongly agree

Statistical Summary of SUS Results (3)

- Believe that most people could learn to use BillChop quickly

  - 20% strongly disagree, 47% disagree, 13% neutral, 20% agree, 0% strongly agree

- Found BillChop very cumbersome to use

  - 0% strongly disagree, 27% disagree, 7% neutral, 47% agree, 20% strongly agree

- Felt very confident using BillChop

  - 0% strongly disagree, 33% disagree, 47% neutral, 20% agree, 0% strongly agree

- Needed to learn alot before using BillChop

  - 0% strongly disagree, 33% disagree, 7% neutral, 40% agree, 20% strongly agree

Appendix A: Task Lists

Moderators generally followed one three sets of tasks:

Set 1:
- Scan a receipt and use the app until you are satisfied with the itemized list produced
- Navigate to the group creation page
- Create a group
- Delete a member from the group
- Add a member to the group

Set 2:
- Navigate to the scanning receipt screen
- Take a picture of the receipt
- Navigate to itemized list screen
- Edit an item's name
- Edit an item's cost
- Delete an item
- Add an item that's not on the receipt
- Navigate to the item assignment page
- Assign an item to a user
- Un-assign an item from a user

Appendix A: Task Lists Cont.

Set 3:

- Create a group with 1-2 other contacts
- Upload a receipt to this group
- Assign items to the members of the group
- Change the item assignments
- Send notifications to the people you assigned items to
- Navigate to the receipt history tab
- Open up a specific receipt
- Name the individuals who split it and the total cost

Appendix B: Test Details

Age Group	Gender	Occupation	Moderator	Observer	Tasks
18-22	Male	College Student	Sagar	Joe	Set 1
18-22	Male	College Student	Joe	Sagar	Set 1
23-28	Female	Software Dev (spent 4 months traveling after graduation)	Katie	Peter	Set 2
29-35	Male	Journalist (frequently travels for job)	Peter	Katie	Set 2
50+	Female	Homemaker/ Mother	Katie	Will	Set 3
18-22	Male	College Student (has studied abroad)	Ramana	Will	Set 3
36-40	Male	Restaurant Manager	Joe	Sagar	Set 1

Appendix B: Test Details Cont.

Age Group	Gender	Occupation	Moderator	Observer	Tasks
23-28	Female	Investment Banker	Sagar	Joe	Set 1
18-22	Female	College Student (has studied abroad)	Will	Katie	Set 2
23-28	Female	Marketing Analyst (traveled for 3 months after graduation)	Ramana	Will	Set 3
18-22	Male	College Student	Will	Peter	Set 2
18-22	Female	College Student	Katie	Ramana	Set 3
50+	Male	Business Executive	Katie	Peter	Set 3
18-22	Male	College Student (has studied abroad)	Sagar	Ramana	Set 1
29-35	Male	Consultant	Will	Ramana	Set 1