**Progress Report**

**- Increment 3 -**

**Group #27**

# Team Members

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1. **Project Title and Description**

This project is titled GrouPay. GrouPay is a web application designed to facilitate users in reconciling collective debts, by allowing individuals to join billing groups, in which they can independently contribute to bills owed by themselves and their peers within the same billing group. Users must first make accounts in order to find the other users with which to join the same billing group, set up by a third party such as a landlord (or property manager, company, etc.), after which they can split bills, such as rent or utilities evenly, and/or distribute percentages of the balance due however they decide. This way, users are individually held accountable for their own parts of the total balance due, simplifying the process of collectively managing mutual expenses.

1. **Accomplishments and overall project status during this increment**

During this increment, we’ve accomplished fleshing out the final major features we had planned for the application, as well as a minor visual update to the application’s navigation bar, its many tables, forms, and overall presentation. Now, as opposed to simply being able to create, search for and join Billing Groups, the full force of user interaction and cooperation on the site is now functional.

From the bottom up, this increment featured the creation of several new MySQL database tables, including: FRIENDS, tracking the friendship relationships between Users on the site, allowing them to message one another, and send/receive and accept/decline Invites to Billing Groups to one another; FRIEND\_REQUESTS, tracking which users have sent friend requests to other users and the status of each request; GROUP\_INVITES, tracking which users have sent Invites to Billing Groups to other users and the status of each invite; and finally MESSAGES, keeping record of all of the contents of each conversation between either users which have Friended each other, or between Users and the Manager of one of their Billing Groups.

Next, the main Python (Flask) module of the application has received the implementation of several major pages and features, including the business logic handling user interaction and cooperation of the site, such as sending, receiving, accepting, and declining Friend Requests or Group Invites, pushing front-end changes down to the database layer for actions such as adding/removing Friends, joining Billing Groups, sending Messages, or altering the details of a Billing Group as a Corporate user, ferrying information back and forth between the HTML front-end and the MySQL back-end to ensure all tables are appropriately populated. With the introduction of several new python functions, the main features of the site have been fully realized, allowing users to fully interact with one another by adding/removing Friends, sending/receiving Messages/Group Invites, joining Billing Groups, and altering the details/members of a Billing Group when viewing the site as a third-party Corporate User. Appropriate business logic has been further expanded upon, cleaned up for readability and ease of use, and finalized in the main ‘app.py’ Python module to handle the greater influx of interaction and information being processed by the new pages and features, allowing for a fluid, intuitive user experience navigating the front end, employing the use of more in-lined buttons.

Finally, (as previously mentioned) the HTML front-end has received a substantial visual overhaul and the addition of the site’s main webpages and their accompanying functionality, including the full realization of a Billing Group Management page, a Friends page, a My Profile page, a Conversation page for messaging between two parties on the site, and minor visual presentation changes for the site’s tables, forms, and the top navigation bar.

1. **Challenges, changes in the plan and scope of the project and things that went wrong during this increment**

The most challenging aspect of this increment was generally finding some solution for in-lining buttons and forms to edit the details of a Billing Group. Writing the queries to update the database was simple enough, but working through the HTML, JavaScript, Jinja, Python, and sheer CSS required to simply make a text box appear in the same place as some text previously was, was frankly difficult, at least when trying to find an implementation that was aesthetically pleasing. Other than that, previous implementations of all 3 layers of the project’s stack were re-used as the basis for the new features, from database tables to Python functions to HTML pages, so those sections of the project went smoothly.

As for changes to the initial plan and overall scope, it has definitely shifted as we approached the end of the semester. Considering that an actual, fully realized payment system would require the use of someone’s genuine card/banking information, we realized implementing an actual payment system may be outside the overall scope of the project, as we were unfamiliar with the “red tape” and peripheral legal considerations related to the monetary aspects of out project. As none of the group members wanted to get involved with the legalities of potential fraud associated with putting real-world money into the application, we decided to finally bench the feature, as well as the ledger/payment record system associated with it, as we cannot keep records of payments that simply don’t exist, as the users would not be able to make any. Moreover, our plans to distribute the back-end also fell through, as we discovered as a result of research that any solution for a distributed back-end required payment on our end, which we also decided was outside the scope of the project.

1. **Team Member Contribution for this increment**

* Ian Estevez:
  + Progress Report: Primarily wrote all sections of the progress report except for Stakeholder Communication, with input/suggestions from and discussion with William and Jack.
  + Requirements and Design Document: Gave input/suggestions and discussion for the sections of the document relevant to Increment 3.
  + Implementation and Testing Document: Primarily wrote the sections of the document required for Increment 3, with input/suggestions from and discussion with William and Jack.
  + Source Code: Implemented main site overhaul, including updates to tables, navigation bar, and overall site presentation, as well as full functionality and business logic behind new pages including implementation of My Profile and Billing Group Management pages.
  + Video: Appears in and contributes to discussion within video; filmed, saved, and submitted video.
* William Hudmon:
  + Progress Report: Gave input/suggestions and discussion for the sections of the document relevant to Increment 3.
  + Requirements and Design Document: Primarily wrote all sections of the Requirements and Design Document, with input/suggestions from and discussion with Ian and Jack.
  + Implementation and Testing Document: Gave input/suggestions and discussion for the sections of the document required for Increment 3.
  + Source Code: Added floating logo asset to Home and Login pages.
  + Video: Appears in and contributes to discussion within video.
* Jack Throdahl:
  + Progress Report: Wrote entirety of Stakeholder Communication; Gave input/suggestions and discussion for the sections of the document relevant to Increment 3.
  + Requirements and Design Document: Gave input/suggestions and discussion for the sections of the document required for Increment 3.
  + Implementation and Testing Document: Gave input/suggestions and discussion for the sections of the document required for Increment 3.
  + Video: Appears in and contributes to discussion within video.

1. **Plans for the next increment**

Considering this is the final Increment of the project, and our time has essentially run out, we may instead discuss the theoretical features we would implement or steps we would take in the future, had this been a fully-fledged startup. First and foremost, we would go through the proper channels to implement an actual payment system, and its accompanying ledger/payment record system. Of course, a payment management application for paying bills in cooperation with other users needs a payment system, but that requires some genuine planning, foresight, and knowledge in the space of handling real-world currency, which we decided was ultimately not something we could approach with confidence and poise. Moreover, the distribution of the back end would be next on the list, as an application of this scope is obviously useless operating completely client-side, as user cooperation would be entirely impossible without complete distribution. Considering we discovered this to generally require monetary input on our part, and (ironically) no one on the development team wanted to undertake the discomfort of splitting this bill of hosting the site on the cloud, we finally dropped the idea altogether, but it would absolutely be part of the fully realized application.

1. **Stakeholder Communication**

Dear Stakeholders,

I am pleased to share the progress we have made in this third increment of the GrouPay project. We have successfully implemented several key features that enhance the user experience. The first feature is searching for other users. Users can now search for other members within the platform. Once a user is found, the current user can send a friend request to that account. The second feature is a friend system. Our friend system allows users to send and receive friend requests. Recipients have the option to accept or decline these requests. The third feature is a messaging system. Users who are either in the same billing group or are friends can now send and receive messages to and from each other. The fourth feature is user profile viewing. Users can view their own profiles as well as view other users’ profiles. Viewing one's own profile displays personal information, while viewing another user's profile provides details about that user and the billing groups they are part of. The final feature is an enhancement of UI design. We have enhanced the website's CSS to improve user-friendliness. A dynamic animation has been added to the home page, and the overall design has been refined to make the website more visually appealing and easier to navigate. We have met all the goals set in the previous increment and are excited about the continued progress in future developments.

Regards,

GrouPay Development Team

1. **Link to video**

<https://youtu.be/2Xfw8R6a44g>