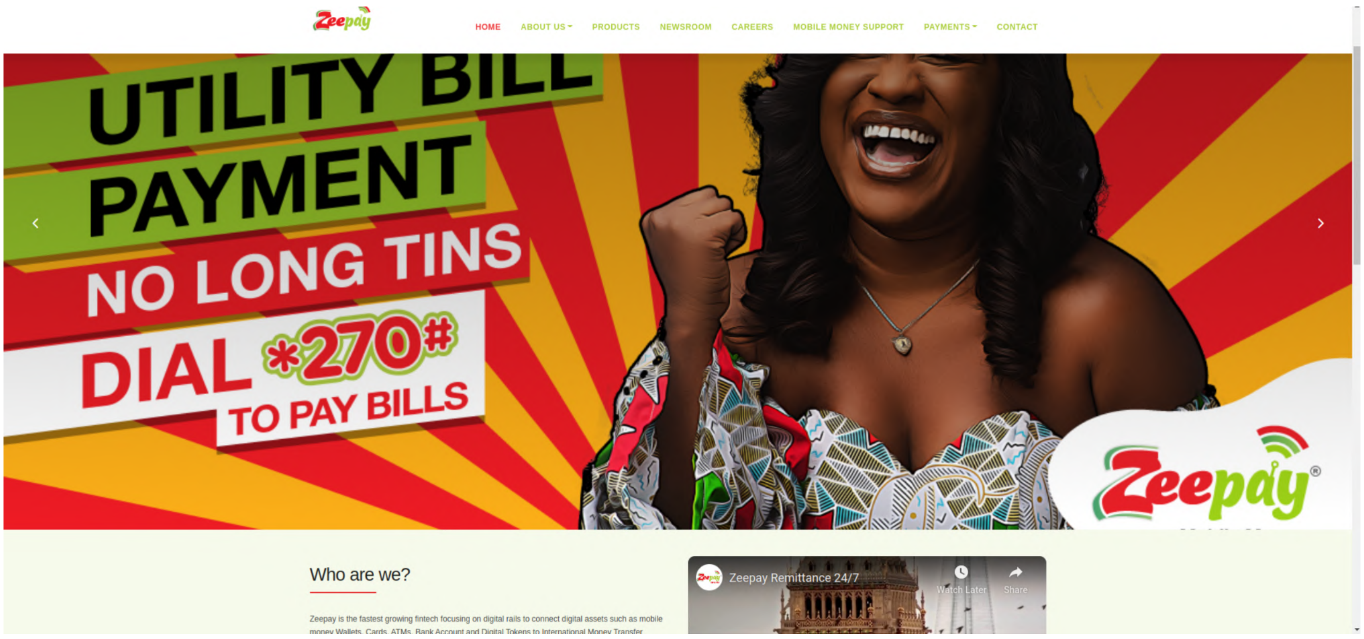
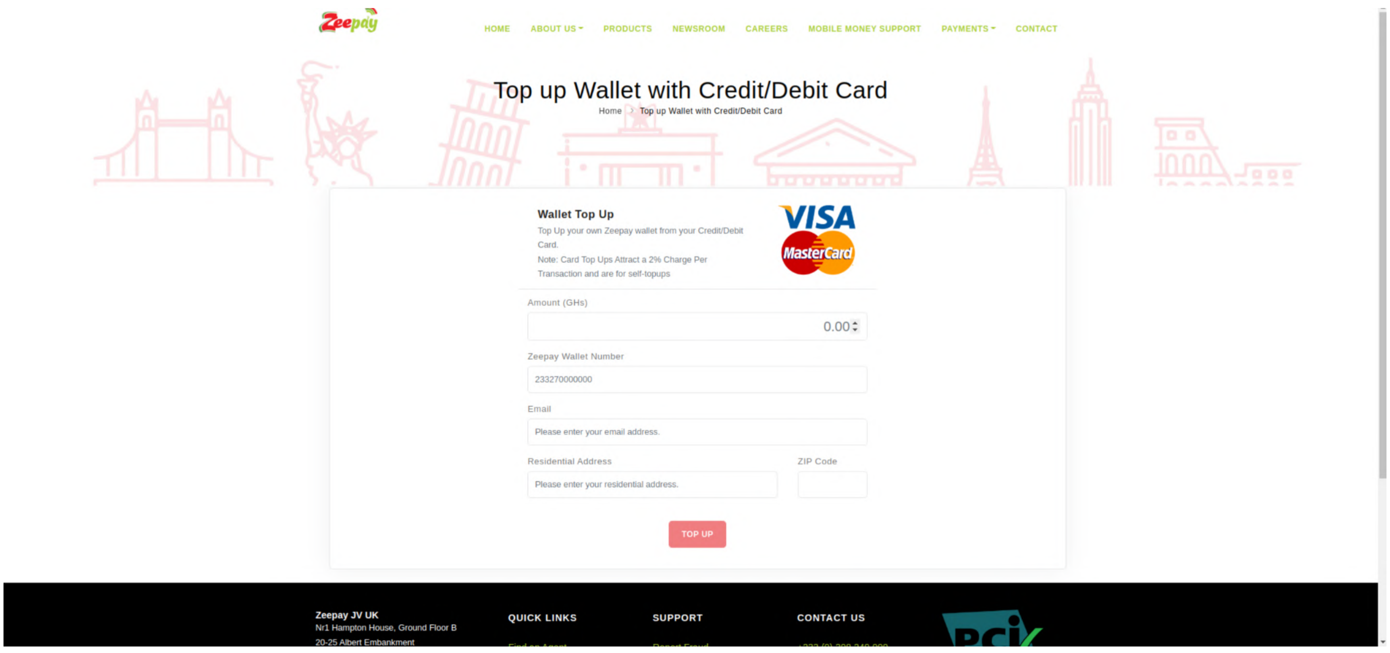
Most Recent Projects (Work)

- **Multi Country Payment Gateway Processor**. Consists of multiple Integrations of systems across the globe from companies such as Ria, MoneyGram, Terrapay, Remitly, Software Group, Verifone, VISA, Mastercard, MTN, Airtel, Vodafone, Twilio, Infobip, Apple Pay, Ecobank, Enterprise, Zamtel and others. Platform supports termination of remittance and payments processing by partner clients globally. Dashboard is built with Vue3 and supports analytical tools, API key management, user management, transactions monitoring among others. Backend is built in PHP Laravel leveraging event sourcing and CQRS patterns with storage ends in Redis, MySQL, and Meilisearch for fast transaction queries. The backend is a microservices architecture deployed on Amazon Web Services. The API is structured to be simple; to allow clients to send or take payments with a simplified API. API follows the OpenAPI (Swagger) and oAUth standards. https://enterprise.digitaltermination.com/
- **Zeepay Website**
  Website built with VueJS frontend and PHP backend with in-built page analytics. The website also supports performing financial transactions such as buying gift cards and topping up mobile wallets using VISA or MasterCard. All integrations and payment processing are built internally leveraging PHP, MySQL, Cloud native solutions and other performant enhancement tools. https://myzeepay.com



Who are we?

Zeepay is the fastest growing fintech focusing on digital rails to connect digital assets such as mobile money Wallets, Cards, ATMs, Bank Account and Digital Tokens to International Money Transfer

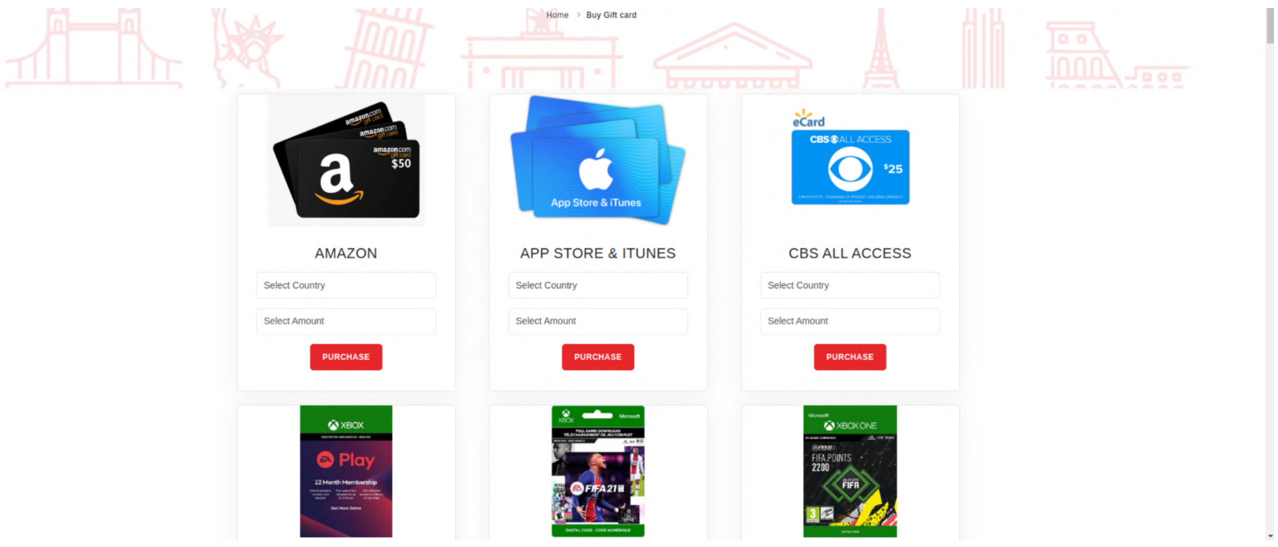


Top up Wallet with Credit/Debit Card

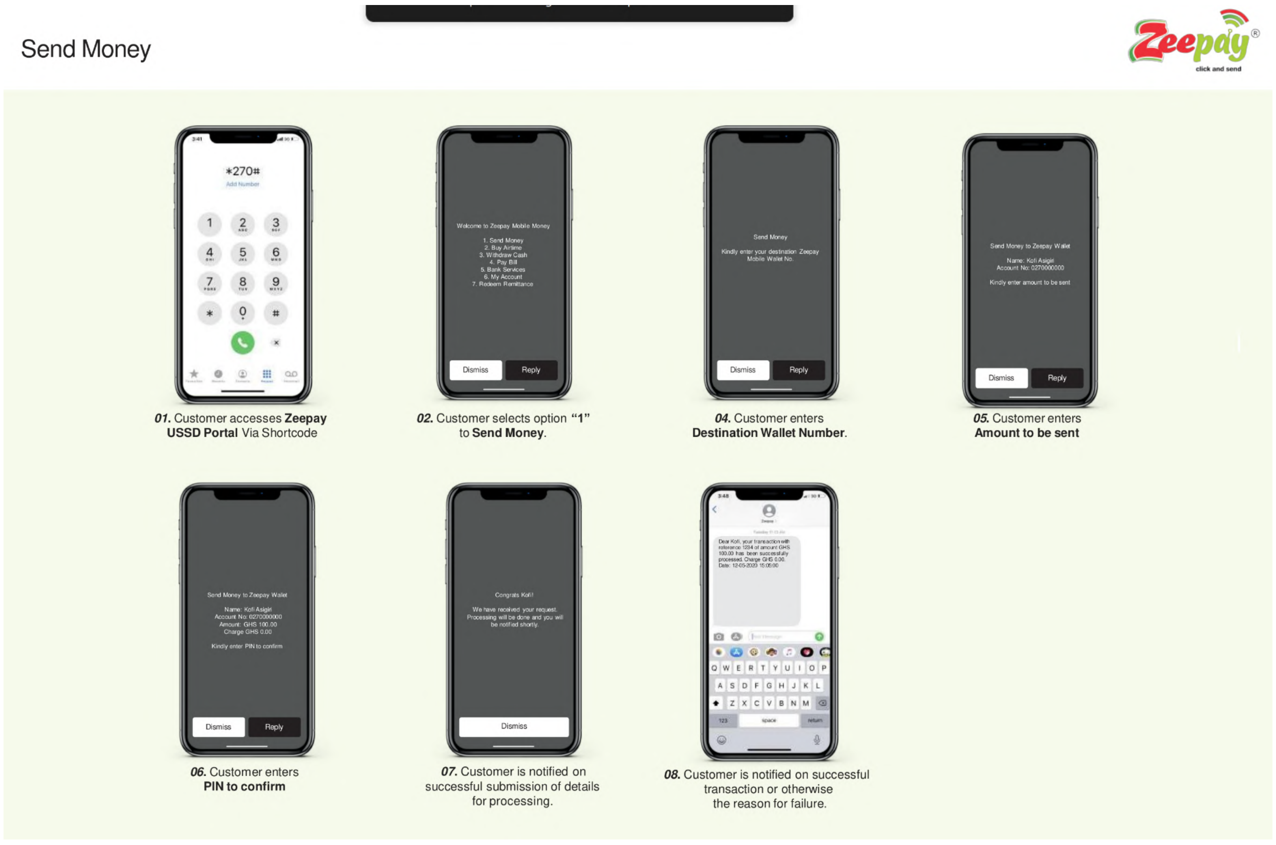
Wallet Top Up
Top Up your own Zeepay wallet from your Credit/Debit Card.
Note: Card Top Ups Attract a 2% Charge Per Transaction and are for self-topups

Amount (GHs): 0.00
Zeepay Wallet Number: 233270000000
Email: Please enter your email address.
Residential Address: Please enter your residential address.
ZIP Code:

Zeepay JV UK
Nr1 Hampton House, Ground Floor B
20-25 Albert Embankment



- **USSD/WhatsApp Mobile Money Application**
  Application for mobile money wallets in Ghana, Barbados, Zambia, Côte D'ivoire, UK to allow customers to sign up for wallets, perform transactions, buy airtime, gift cards, insurance products and perform other account management functions. Application is purely backend with a PHP interface layer between the USSD/WhatsApp clients. Beneath the PHP layer is a core distributed system built as NodeJS microservices for scalability to support 1 million+ active users and about



Send Money

*270#

Welcome to Zeepay Mobile Money

1. Send Money
2. Buy Airtime
3. Withdraw Cash
4. Pay Bill
5. Bank Services
6. My Account
7. Redeem Remittance

Send Money

Kindly enter your destination Zeepay Mobile Wallet No.

Send Money to Zeepay Wallet

Name: Kofi Asigiri
Account No: 0270000000

Kindly enter amount to be sent

Send Money to Zeepay Wallet

Name: Kofi Asigiri
Account No: 0270000000
Amount: GHS 100.00
Charge GHS 0.00

Kindly enter PIN to confirm

Congrats Kofi!

We have received your request. Processing will be done and you will be notified shortly.

Dear Kofi, your transaction with reference 1234 of amount GHS 100.00 has been successfully processed. Charge GHS 0.00. Date: 12-05-2020 15:05:00

01. Customer accesses **Zeepay USSD Portal** Via Shortcode

02. Customer selects option **"1"** to **Send Money**.

04. Customer enters **Destination Wallet Number**.

05. Customer enters **Amount to be sent**

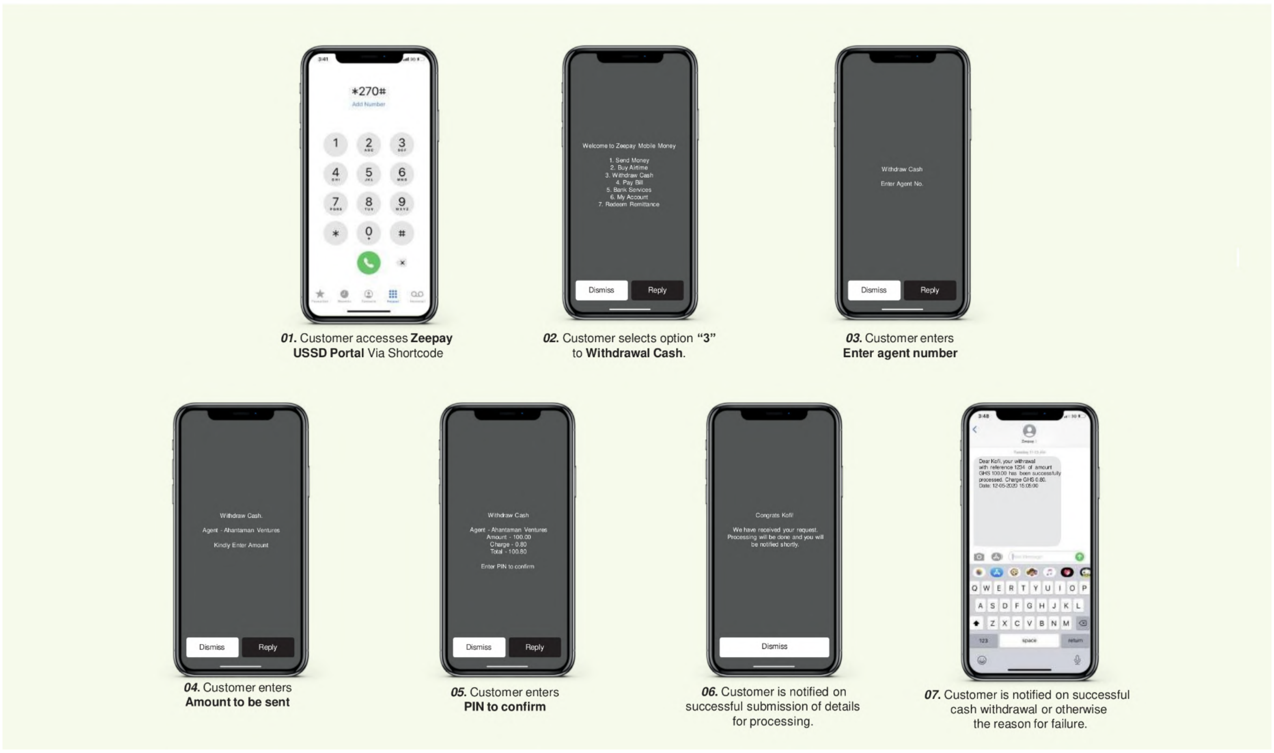
06. Customer enters **PIN to confirm**

07. Customer is notified on successful submission of details for processing.

08. Customer is notified on successful transaction or otherwise the reason for failure.

10000 transactions a second.

Withdraw Cash



Welcome to Zeepay Mobile Money

1. Send Money
2. Buy Airtime
3. Withdraw Cash
4. Pay Bill
5. Bank Services
6. My Account
7. Redeem Remittance

Withdraw Cash

Enter Agent No.

Withdraw Cash.

Agent - Ahantaman Ventures

Kindly Enter Amount

Withdraw Cash

Agent - Ahantaman Ventures
Amount - 100.00
Charge - 0.80
Total - 100.80

Enter PIN to confirm

Congrats Kofi!

We have received your request. Processing will be done and you will be notified shortly.

Dear Kofi, your withrawal with reference 1234 of amount GHS 100.00 has been successfully processed. Charge GHS 0.80. Date: 12-05-2020 15:05:00

01. Customer accesses **Zeepay USSD Portal** Via Shortcode

02. Customer selects option "3" to **Withdrawal Cash**.

03. Customer enters **Enter agent number**

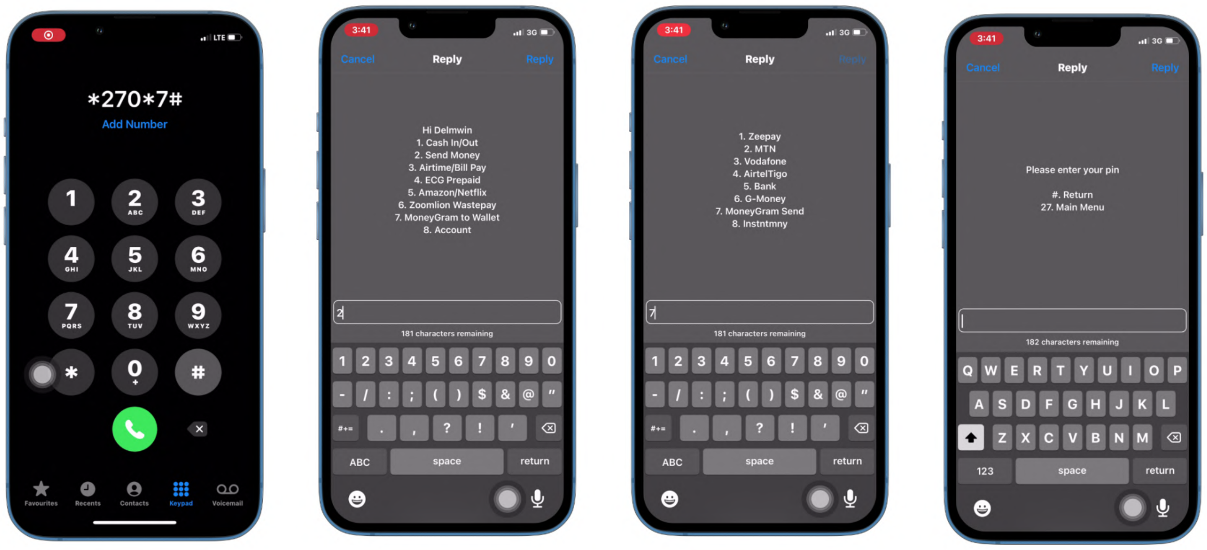
04. Customer enters **Amount to be sent**

05. Customer enters **PIN to confirm**

06. Customer is notified on successful submission of details for processing.

07. Customer is notified on successful cash withdrawal or otherwise the reason for failure.

- **MoneyGram Directed Receives and Directed Send**
  Product built on top of the mobile money infrastructure to allow users to send money and receive remittances into wallets through MoneyGram on any type of phone and without the need for internet services. The goal is to remove the need for visiting banks especially in rural areas. Application is built using PHP, Reds, MySQL and MoneyGram core APIs to build a personalized experience that dynamically presents different screens based on the user and what information is required to perform a transaction. Background jobs run to facilitate receipt generation and notifications



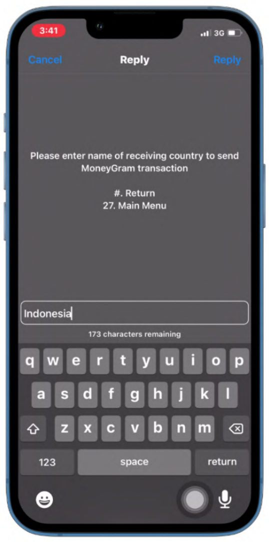
Hi Delmwin
1. Cash In/Out
2. Send Money
3. Airtime/Bill Pay
4. ECG Prepaid
5. Amazon/Netflix
6. Zoomlion Wastepay
7. MoneyGram to Wallet
8. Account

1. Zeepay
2. MTN
3. Vodafone
4. AirtelTigo
5. Bank
6. G-Money
7. MoneyGram Send
8. Instntmny

Please enter your pin

#. Return
27. Main Menu

Dial shortcode Select option 2 Select optioin 7 Authorize with pin


Cancel Reply Reply

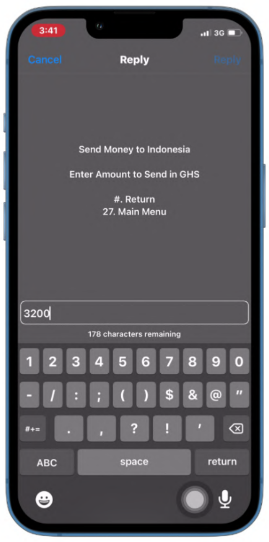
Please enter name of receiving country to send MoneyGram transaction

#. Return
27. Main Menu

Indonesia

173 characters remaining

Enter destination country


Cancel Reply Reply

Send Money to Indonesia

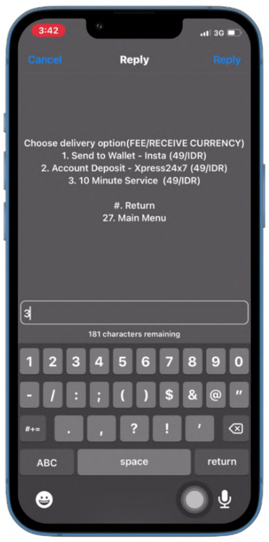
Enter Amount to Send in GHS

#. Return
27. Main Menu

3200

178 characters remaining

Enter amount


Cancel Reply Reply

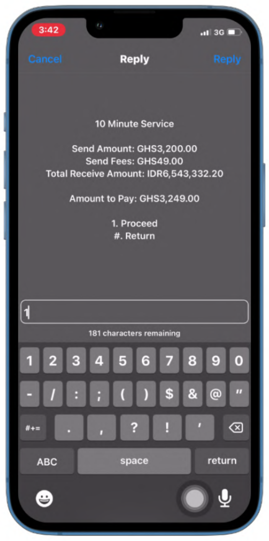
Choose delivery option(FEE/RECEIVE CURRENCY)
1. Send to Wallet - Insta (49/IDR)
2. Account Deposit - Xpress24x7 (49/IDR)
3. 10 Minute Service (49/IDR)

#. Return
27. Main Menu

3

181 characters remaining

Select how receiver gets funds


Cancel Reply Reply

10 Minute Service

Send Amount: GHS3,200.00
Send Fees: GHS49.00
Total Receive Amount: IDR6,543,332.20

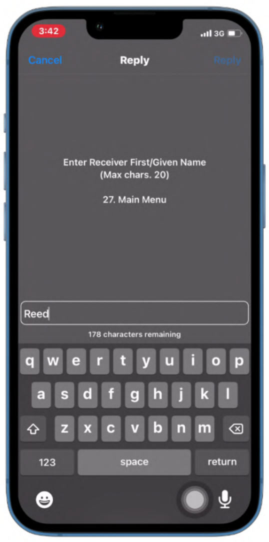
Amount to Pay: GHS3,249.00

1. Proceed
#. Return

1

181 characters remaining

Confirm fee with selected option


Cancel Reply Reply

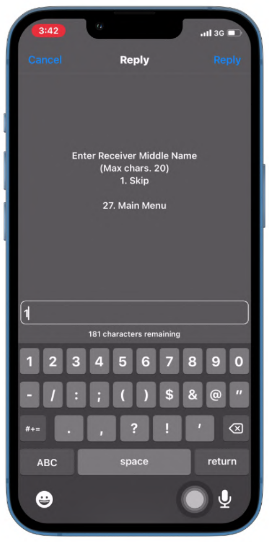
Enter Receiver First/Given Name
(Max chars. 20)

27. Main Menu

Reed

178 characters remaining

Enter receiver's first name


Cancel Reply Reply

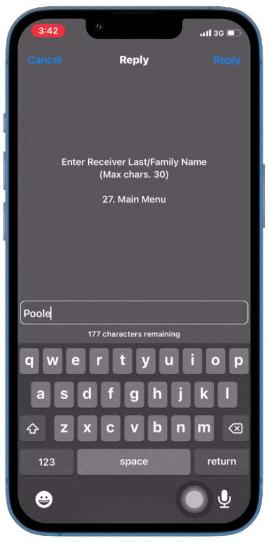
Enter Receiver Middle Name
(Max chars. 20)
1. Skip

27. Main Menu

1

181 characters remaining

Enter receiver's middle name


Cancel Reply Reply

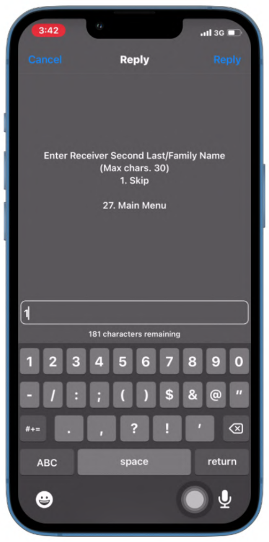
Enter Receiver Last/Family Name
(Max chars. 30)

27. Main Menu

Poole

177 characters remaining

Enter receiver's last name


Cancel Reply Reply

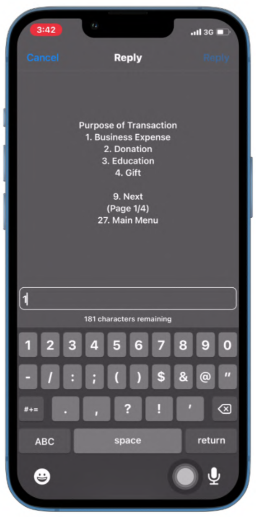
Enter Receiver Second Last/Family Name
(Max chars. 30)
1. Skip

27. Main Menu

1

181 characters remaining

Enter receiver's second last name


Cancel Reply Reply

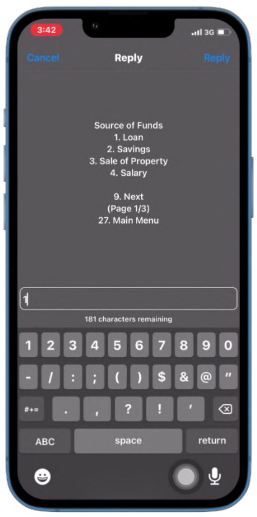
Purpose of Transaction
1. Business Expense
2. Donation
3. Education
4. Gift

9. Next
(Page 1/4)
27. Main Menu

1

181 characters remaining

Select purpose of transaction


Cancel Reply Reply

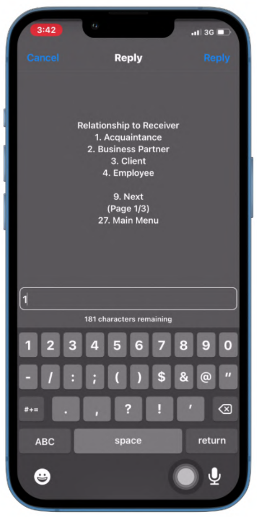
Source of Funds
1. Loan
2. Savings
3. Sale of Property
4. Salary

9. Next
(Page 1/3)
27. Main Menu

1

181 characters remaining

Select source of funds


Cancel Reply Reply

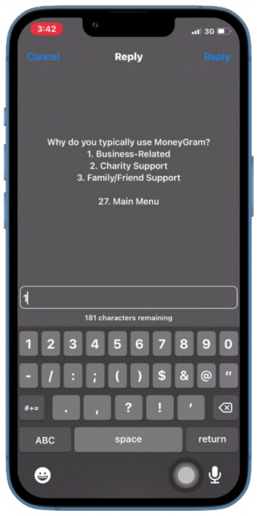
Relationship to Receiver
1. Acquaintance
2. Business Partner
3. Client
4. Employee

9. Next
(Page 1/3)
27. Main Menu

1

181 characters remaining

Select relationship to receiver


Cancel Reply Reply

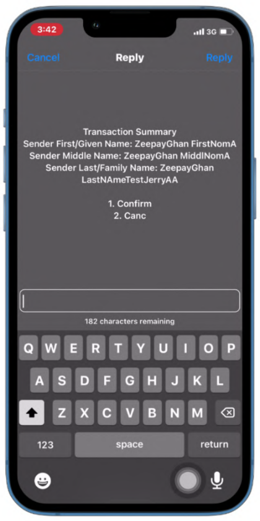
Why do you typically use MoneyGram?
1. Business-Related
2. Charity Support
3. Family/Friend Support

27. Main Menu

1

181 characters remaining

Select MG intended use of services

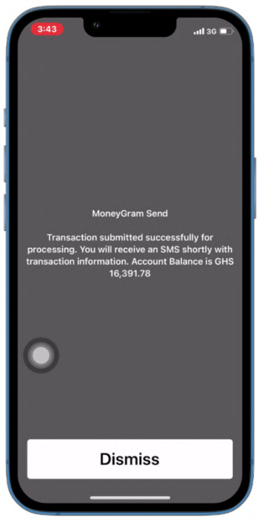


Transaction Summary
Sender First/Given Name: ZeepayGhan FirstNomA
Sender Middle Name: ZeepayGhan MiddlNomA
Sender Last/Family Name: ZeepayGhan LastNAmeTestJerryAA

1. Confirm
2. Canc

182 characters remaining

Confirm transaction details and send

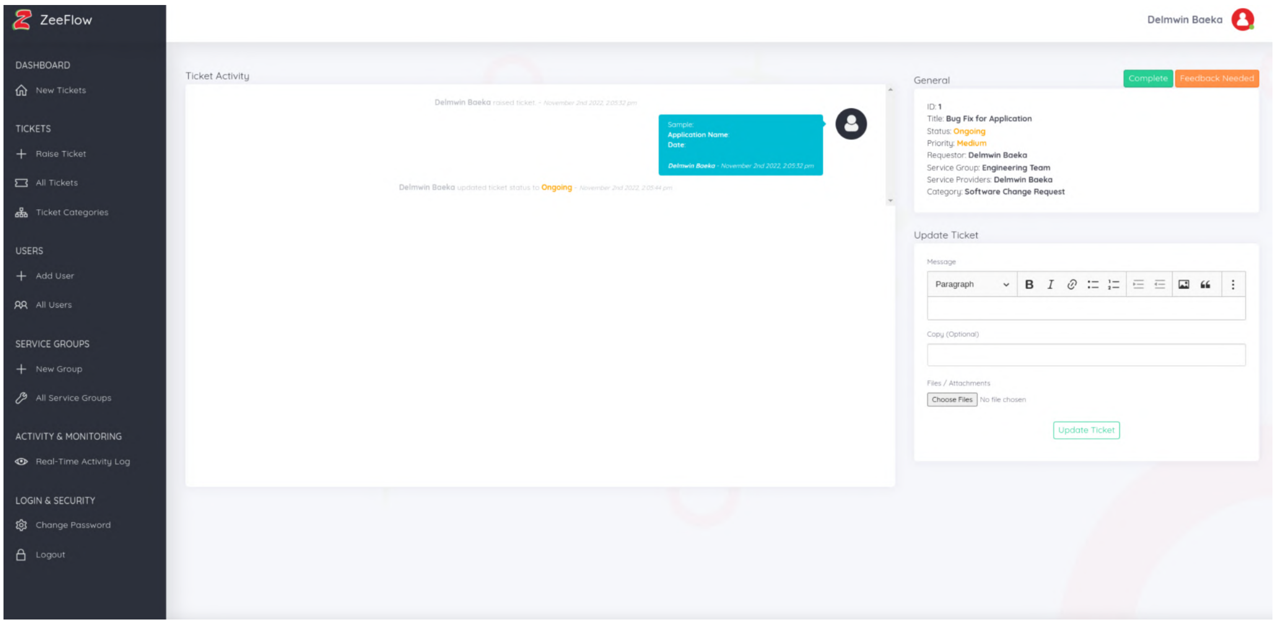


MoneyGram Send

Transaction submitted successfully for processing. You will receive an SMS shortly with transaction information. Account Balance is GHS 16,391.78

Confirmation screen

- **Zeeflow - Ticketing system**
  Fully functional ticketing system application built with Laravel, VueJs and MySQL stack for making tickets, resolving tickets and assigning tickets. Supports third party integrations such as Zendesk and Twilio.



Ticket Activity

Delmwin Baeka raised ticket. - November 2nd 2022, 2:05:32 pm

Sample:
Application Name:
Date:

Delmwin Baeka - November 2nd 2022, 2:05:32 pm

Delmwin Baeka updated ticket status to Ongoing - November 2nd 2022, 2:05:44 pm

General

ID: 1
Title: Bug Fix for Application
Status: Ongoing
Priority: Medium
Requestor: Delmwin Baeka
Service Group: Engineering Team
Service Providers: Delmwin Baeka
Category: Software Change Request

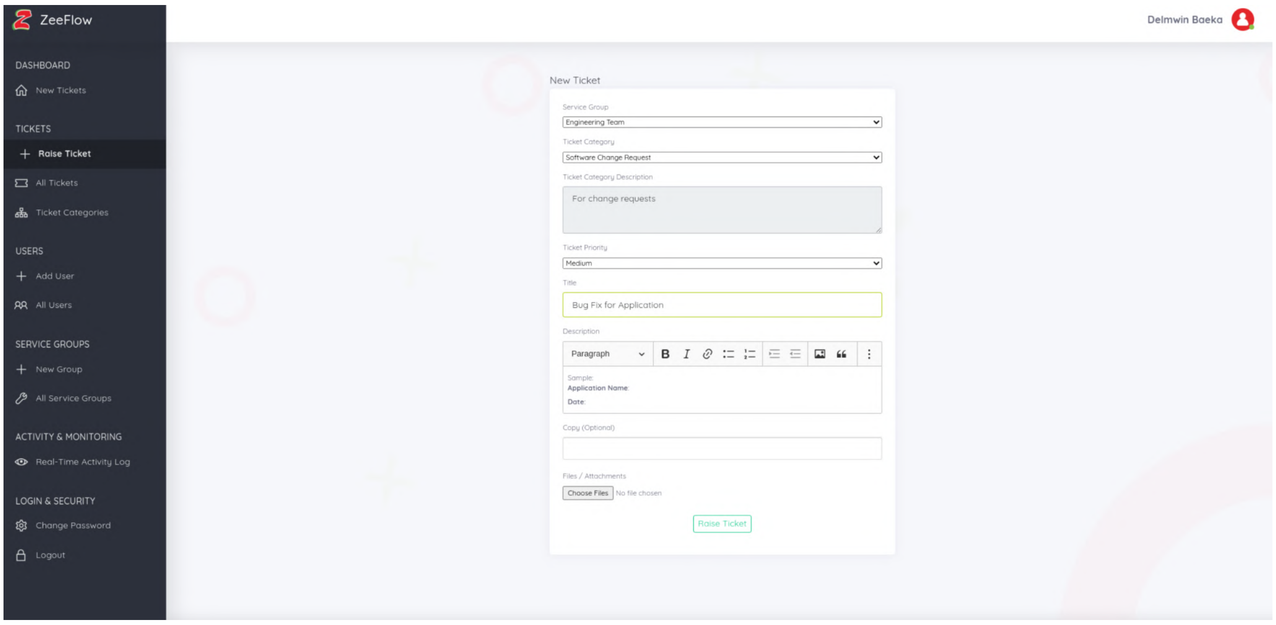
Update Ticket

Message

Copy (Optional)

Files / Attachments

No file chosen



New Ticket

Service Group: Engineering Team

Ticket Category: Software Change Request

Ticket Category Description: For change requests

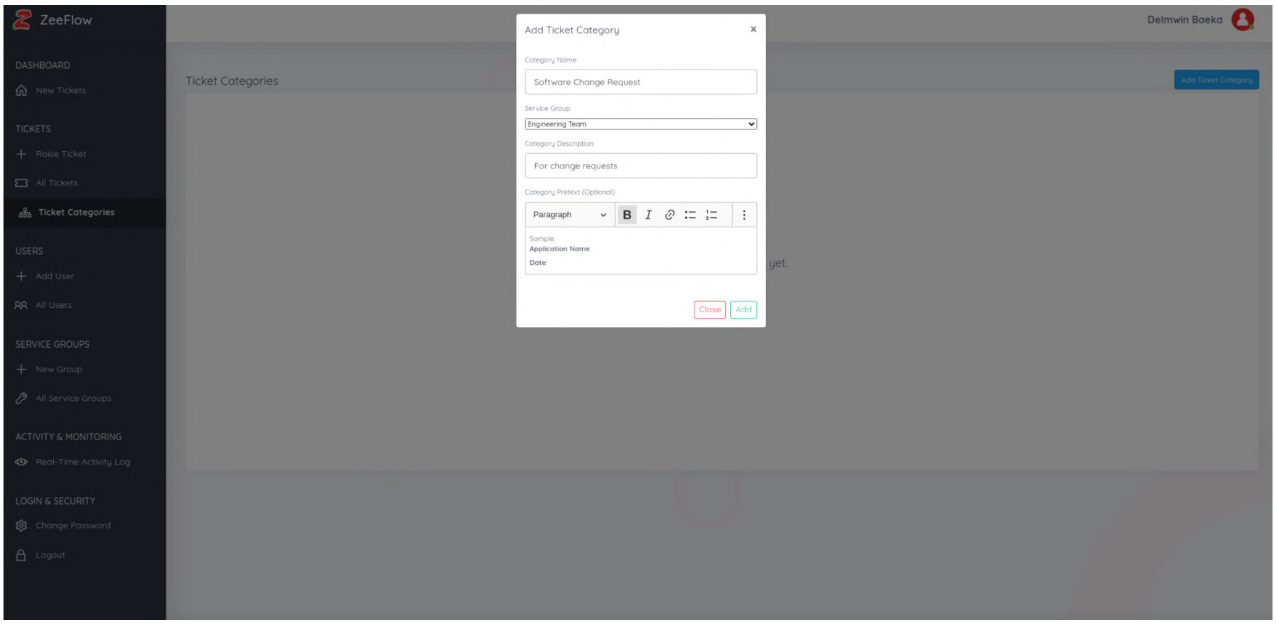
Ticket Priority: Medium

Title: Bug Fix for Application

Description:
Sample:
Application Name:
Date:

Copy (Optional):

Files / Attachments: No file chosen



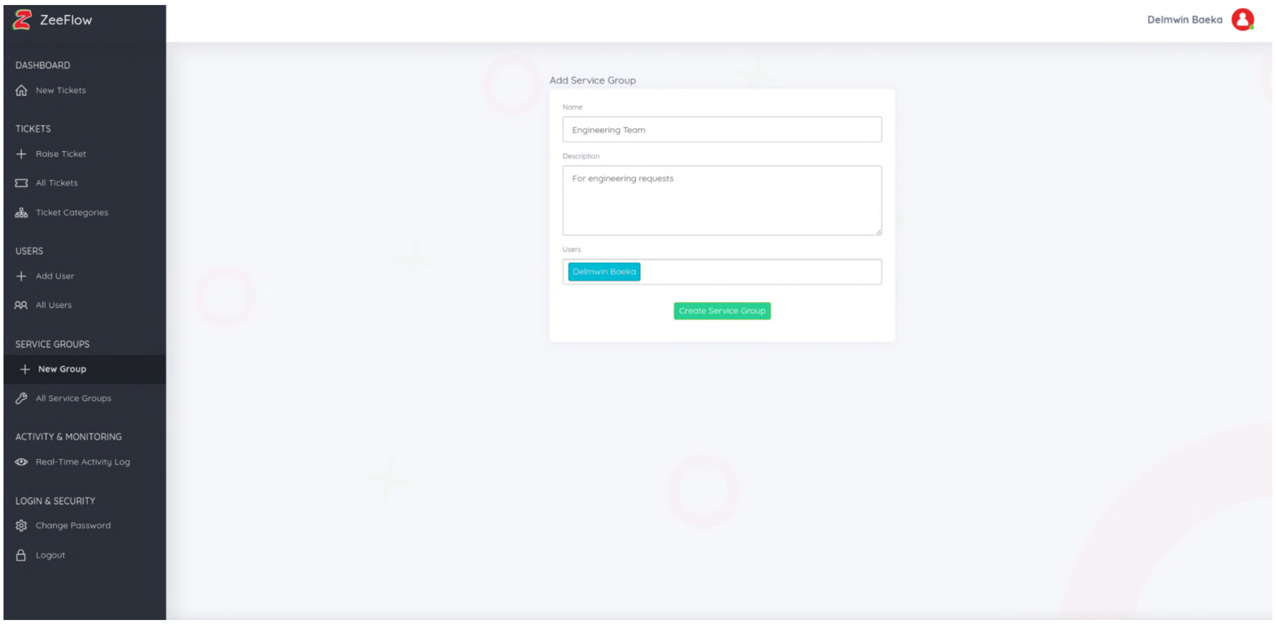
Add Ticket Category

Category Name: Software Change Request

Service Group: Engineering Team

Category Description: For change requests

Category Pretext (Optional):
Sample:
Application Name
Date:



Add Service Group

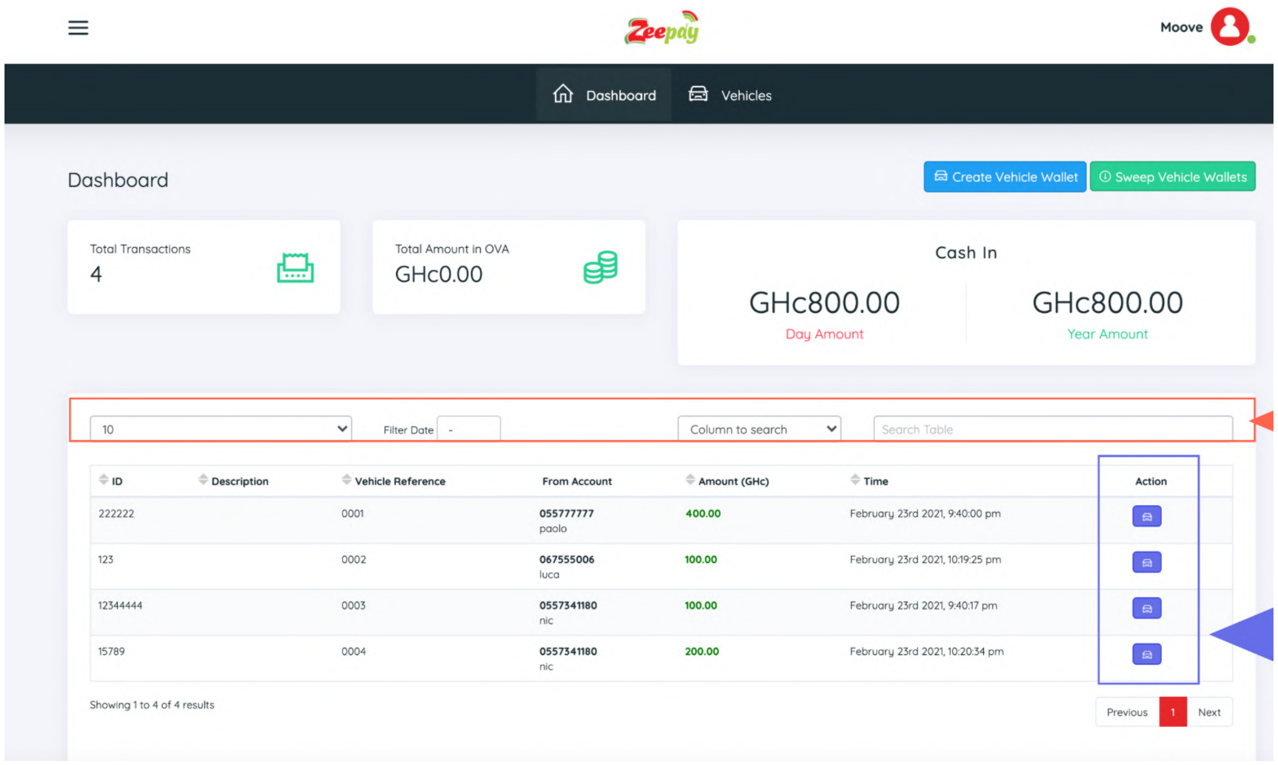
Name: Engineering Team

Description: For engineering requests

Users: Delmwin Baeka

- **Zeerides**

  Application built for ride sharing platforms to assign wallets to vehicles for receiving payments from bank accounts and mobile money wallets during rides and for managing driver payments and automatic scheduled sweeps of funds into the account pool. Dashboard is built in VueJS



Dashboard

Total Transactions
4

Total Amount in OVA
GHc0.00

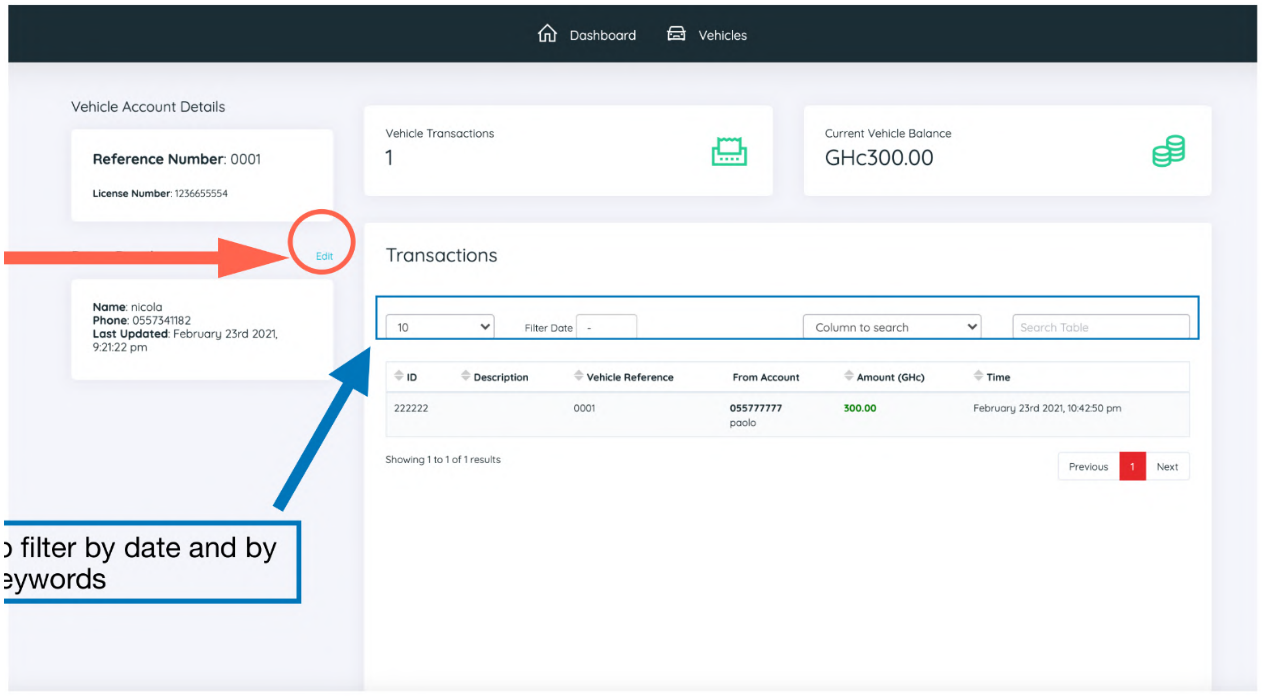
Cash In
GHc800.00 Day Amount
GHc800.00 Year Amount

10 | Filter Date - | Column to search | Search Table

ID	Description	Vehicle Reference	From Account	Amount (GHc)	Time	Action
222222		0001	055777777 paolo	400.00	February 23rd 2021, 9:40:00 pm	
123		0002	067555006 luca	100.00	February 23rd 2021, 10:19:25 pm	
12344444		0003	0557341180 nic	100.00	February 23rd 2021, 9:40:17 pm	
15789		0004	0557341180 nic	200.00	February 23rd 2021, 10:20:34 pm	

Showing 1 to 4 of 4 results

Previous 1 Next



Vehicle Account Details

Reference Number: 0001

License Number: 1236655554

Name: nicola
Phone: 0557341182
Last Updated: February 23rd 2021, 9:21:22 pm

Vehicle Transactions
1

Current Vehicle Balance
GHc300.00

Transactions

10 | Filter Date - | Column to search | Search Table

ID	Description	Vehicle Reference	From Account	Amount (GHc)	Time
222222		0001	055777777 paolo	300.00	February 23rd 2021, 10:42:50 pm

Showing 1 to 1 of 1 results

Previous 1 Next

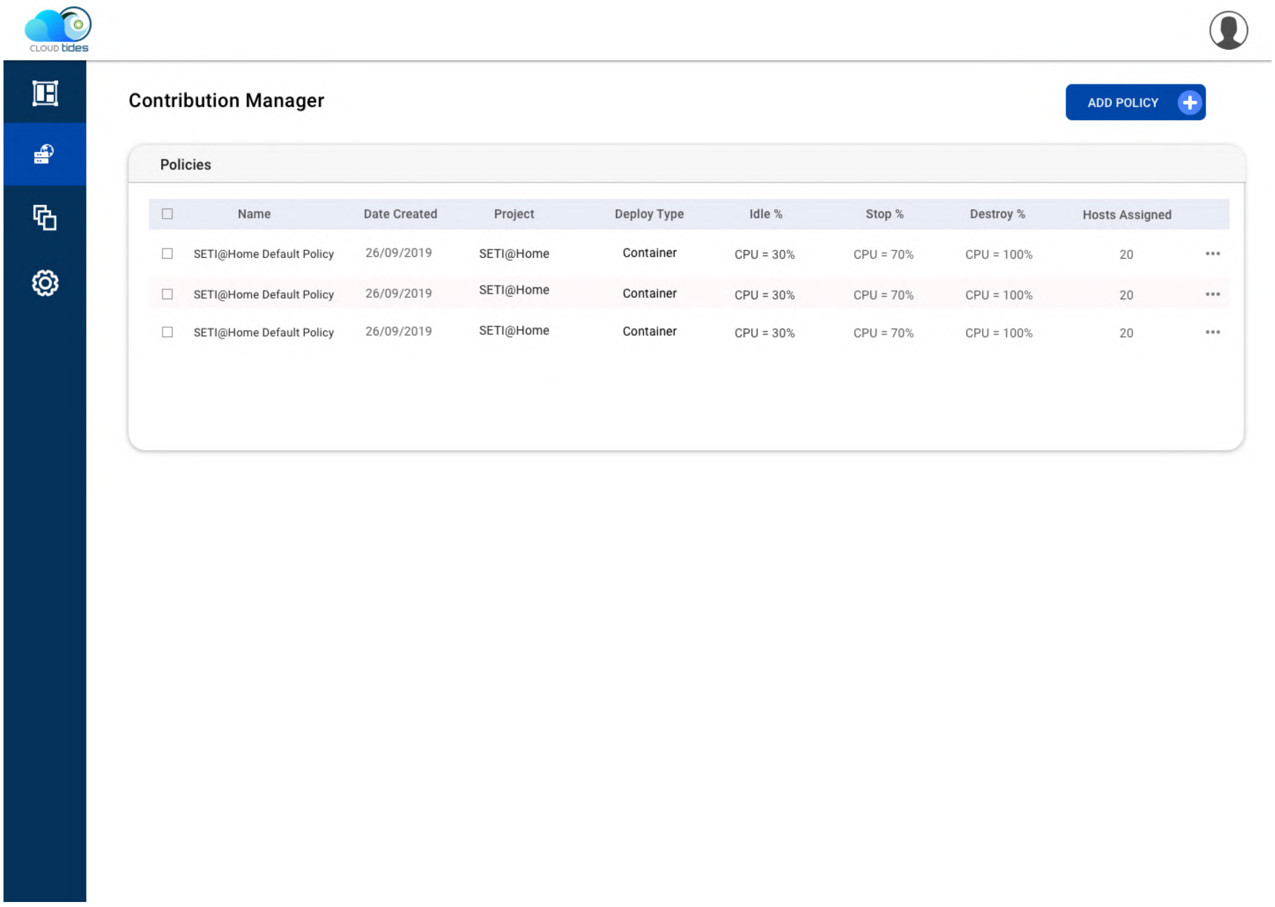
- **Zeeagent**
  Agency banking platform built in Laravel for performing cash to wallet transactions and remittance withdrawals at banks. Application is used by banks in Ghana, Zimbabwe, and Zambia

Projects (Other)

Project Tides (VMware) – Elastic Platform on Idle Cloud Resources
Open-source project to donate private enterprise cloud resources (https://github.com/ji-it/CloudTides)
Project paper here: Project Wiki and Design

Developed a tool using ReactJS frontend, Django/Golang backend and k8s to monitor vSphere cloud resources usage and dynamically donate resources to public volunteer computing through BOINC.

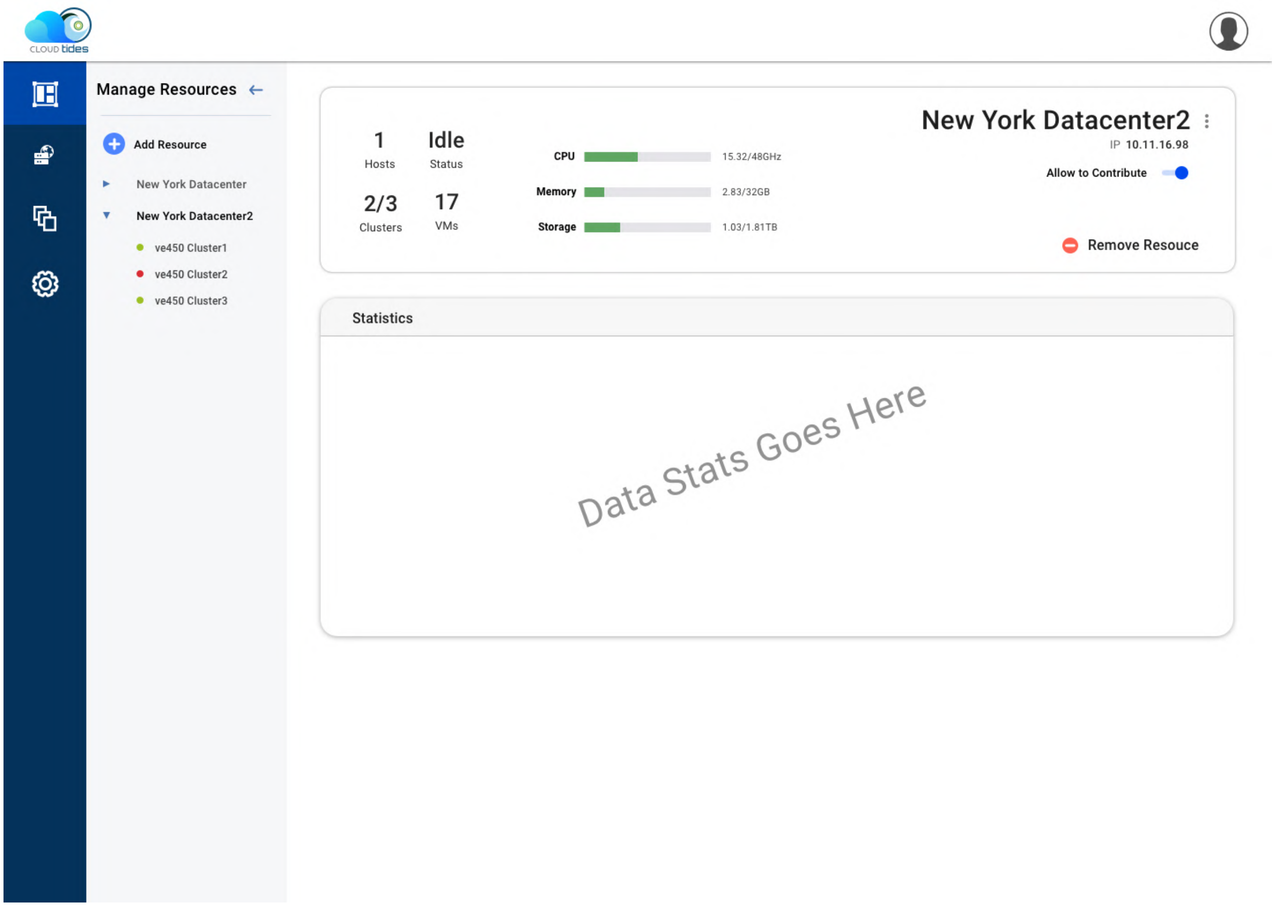
Currently supporting development with the VMware team to extend tools for Folding@Home towards finding COVID-19 solutions.



Contribution Manager

Policies

☐	Name	Date Created	Project	Deploy Type	Idle %	Stop %	Destroy %	Hosts Assigned	
☐	SETI@Home Default Policy	26/09/2019	SETI@Home	Container	CPU = 30%	CPU = 70%	CPU = 100%	20	•••
☐	SETI@Home Default Policy	26/09/2019	SETI@Home	Container	CPU = 30%	CPU = 70%	CPU = 100%	20	•••
☐	SETI@Home Default Policy	26/09/2019	SETI@Home	Container	CPU = 30%	CPU = 70%	CPU = 100%	20	•••

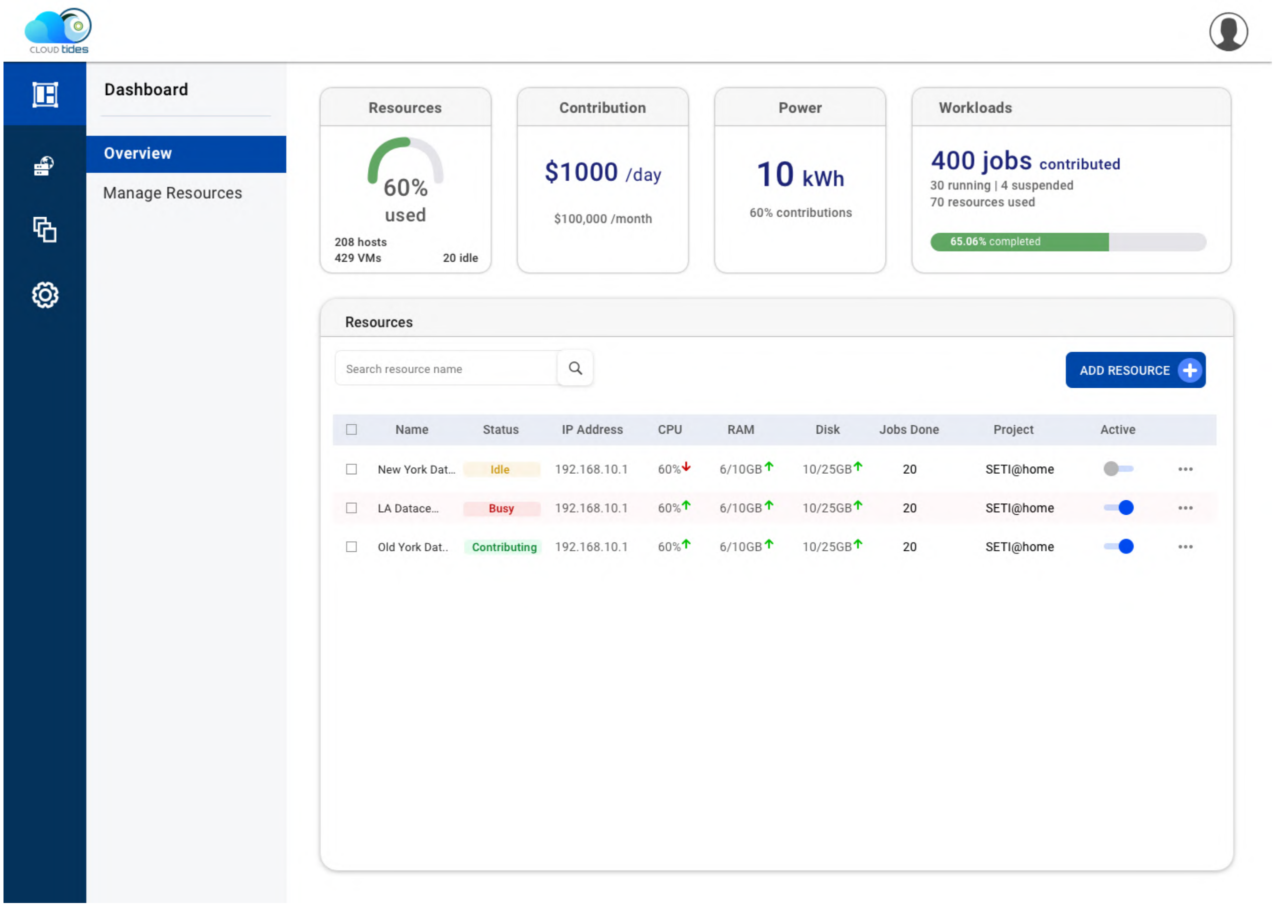


New York Datacenter2

IP 10.11.16.98

1	Hosts
Idle	Status
2/3	Clusters
17	VMs

CPU	15.32/48GHz
Memory	2.83/32GB
Storage	1.03/1.81TB



Resources

60% used

208 hosts
429 VMs
20 idle

Contribution

$1000 /day

$100,000 /month

Power

10 kWh

60% contributions

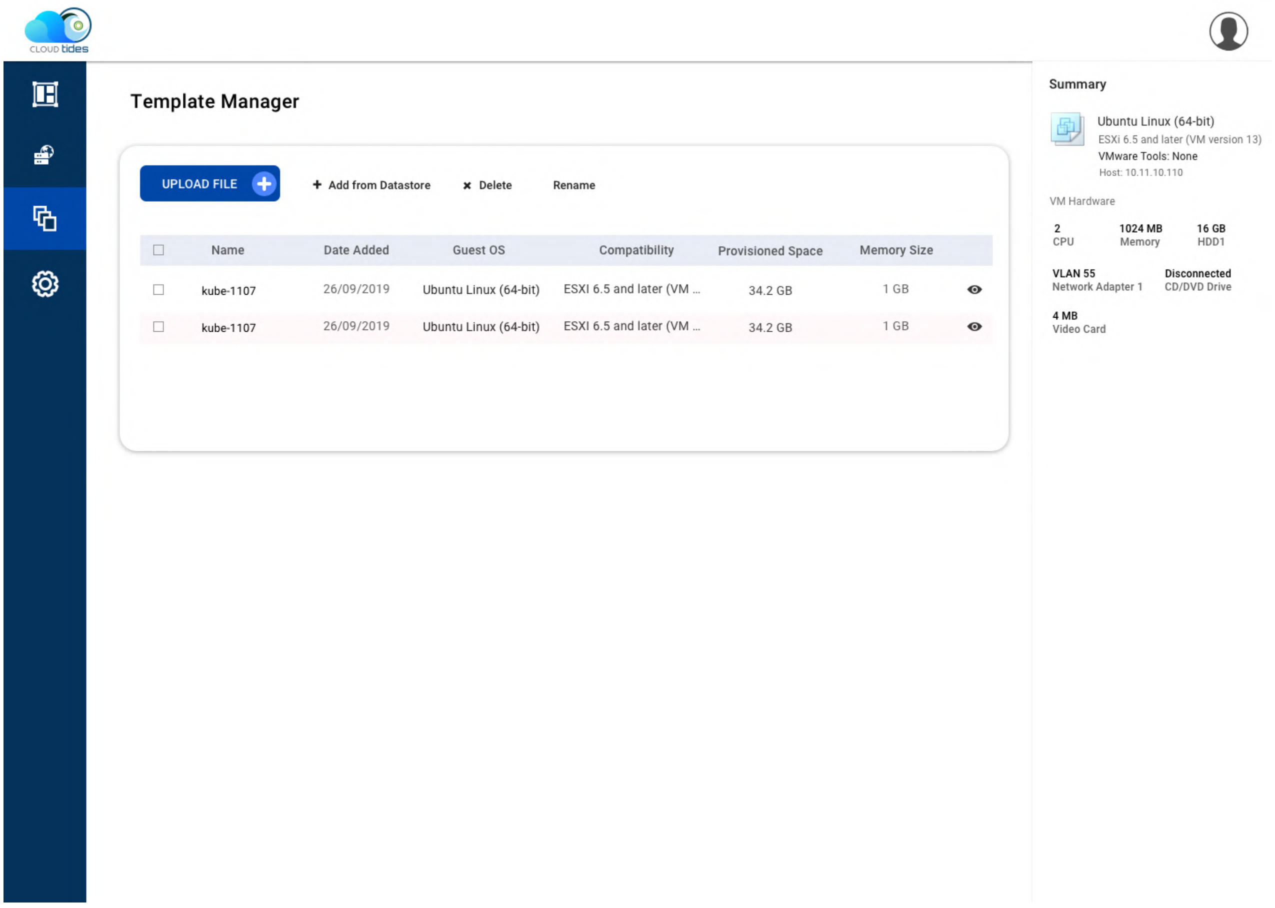
Workloads

400 jobs contributed
30 running | 4 suspended
70 resources used

65.06% completed

Resources

	Name	Status	IP Address	CPU	RAM	Disk	Jobs Done	Project	Active	
☐	New York Dat...	Idle	192.168.10.1	60%↓	6/10GB↑	10/25GB↑	20	SETI@home	○	•••
☐	LA Datace...	Busy	192.168.10.1	60%↑	6/10GB↑	10/25GB↑	20	SETI@home	●	•••
☐	Old York Dat..	Contributing	192.168.10.1	60%↑	6/10GB↑	10/25GB↑	20	SETI@home	●	•••



Template Manager

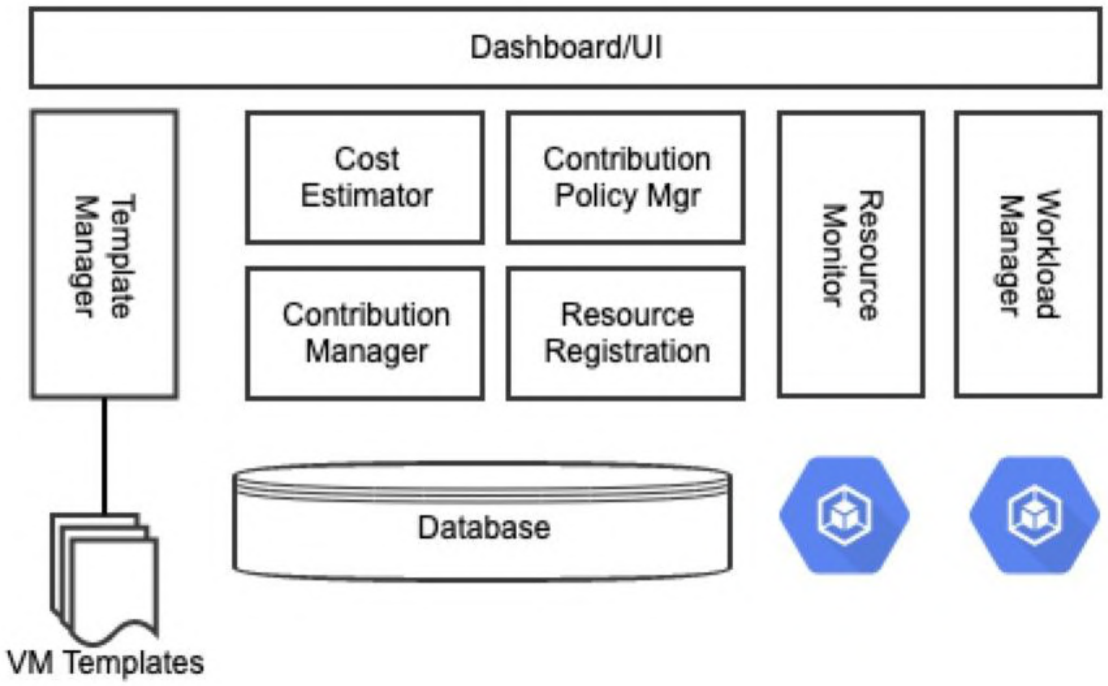
	Name	Date Added	Guest OS	Compatibility	Provisioned Space	Memory Size	
☐	kube-1107	26/09/2019	Ubuntu Linux (64-bit)	ESXI 6.5 and later (VM ...	34.2 GB	1 GB	👁
☐	kube-1107	26/09/2019	Ubuntu Linux (64-bit)	ESXI 6.5 and later (VM ...	34.2 GB	1 GB	👁

Summary

Ubuntu Linux (64-bit)
ESXi 6.5 and later (VM version 13)
VMware Tools: None
Host: 10.11.10.110

VM Hardware

2 CPU
1024 MB Memory
16 GB HDD1
VLAN 55 Network Adapter 1
Disconnected CD/DVD Drive
4 MB Video Card



GeekOS x86 Kernel
Tiny operating system kernel for x86 PCs running on Qemu.

Extended operating system using Assembly code and C to implement forking, virtual memory, file systems, synchronization..

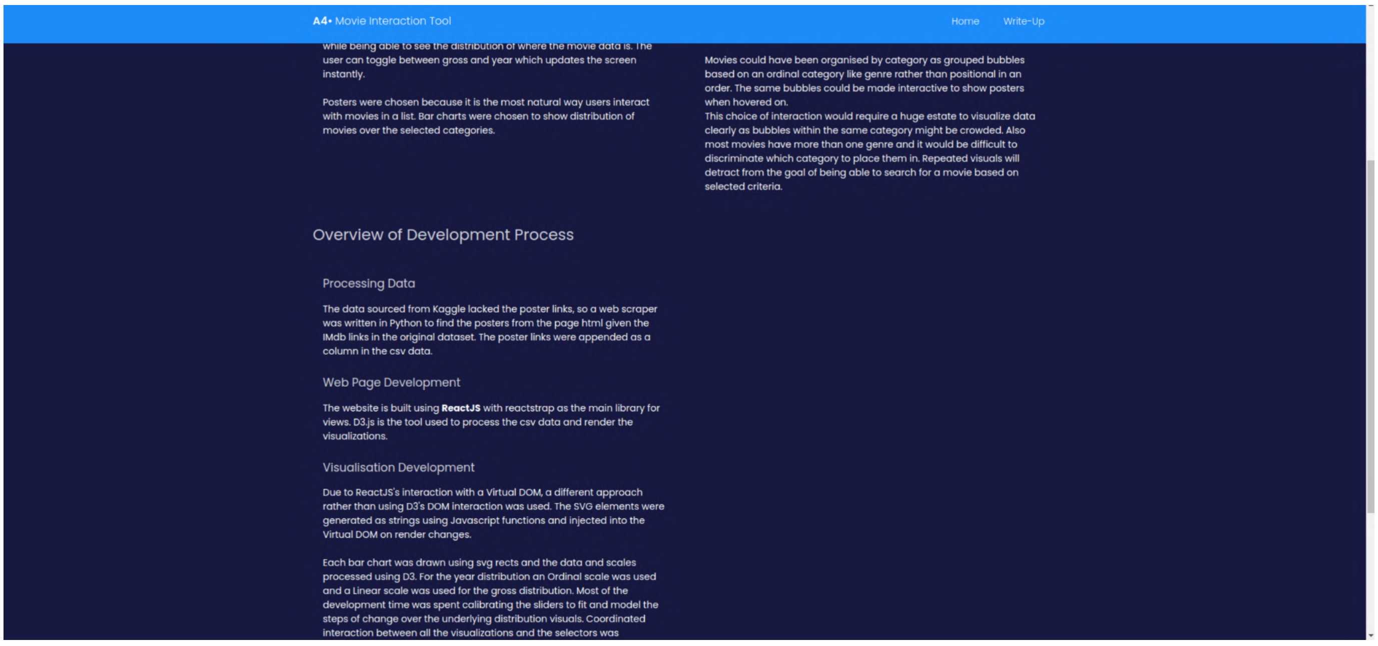
https://github.com/dbaeka/geekos

Tethi: Task Manager Program in ARM Assembly and C
Custom timer-based task manager for ARM Cortex-M Processor

Programmed the STM32L476 Discovery board to run GPIO, ADC, DAC, SPI, I2C and timer control functions in a custom task manager environment.

Movie Data Visualization Tool in ReactJS
Web-based tool for visualizing movie data with filter interaction control
Demo: https://dbaeka.github.io

Built a fast rendering visualization tool for movies using ReactJS.



while being able to see the distribution of where the movie data is. The user can toggle between gross and year which updates the screen instantly.

Posters were chosen because it is the most natural way users interact with movies in a list. Bar charts were chosen to show distribution of movies over the selected categories.

Movies could have been organised by category as grouped bubbles based on an ordinal category like genre rather than positional in an order. The same bubbles could be made interactive to show posters when hovered on.
This choice of interaction would require a huge estate to visualize data clearly as bubbles within the same category might be crowded. Also most movies have more than one genre and it would be difficult to discriminate which category to place them in. Repeated visuals will detract from the goal of being able to search for a movie based on selected criteria.

Overview of Development Process

Processing Data

The data sourced from Kaggle lacked the poster links, so a web scraper was written in Python to find the posters from the page html given the IMdb links in the original dataset. The poster links were appended as a column in the csv data.

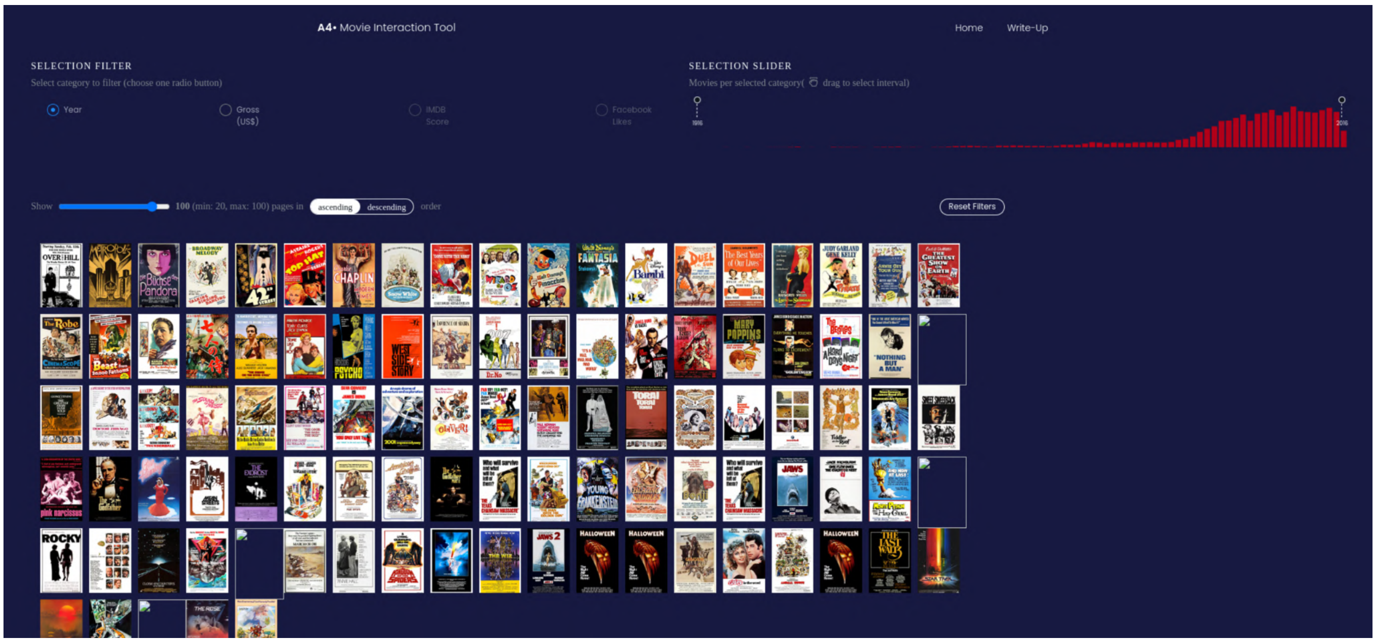
Web Page Development

The website is built using **ReactJS** with reactstrap as the main library for views. D3.js is the tool used to process the csv data and render the visualizations.

Visualisation Development

Due to ReactJS's interaction with a Virtual DOM, a different approach rather than using D3's DOM interaction was used. The SVG elements were generated as strings using Javascript functions and injected into the Virtual DOM on render changes.

Each bar chart was drawn using svg rects and the data and scales processed using D3. For the year distribution an Ordinal scale was used and a Linear scale was used for the gross distribution. Most of the development time was spent calibrating the sliders to fit and model the steps of change over the underlying distribution visuals. Coordinated interaction between all the visualizations and the selectors was


A4• Movie Interaction Tool
Home
Write-Up
SELECTION FILTER
Select category to filter (choose one radio button)
Year
Gross (US$)
IMDB Score
Facebook Likes
SELECTION SLIDER
Movies per selected category(drag to select interval)
Show
100 (min: 20, max: 100) pages in
ascending
descending
order
Reset Filters

UMD Latency Research Website Tool (Flask)

Tool for analyzing how users respond to latency when doing visual search with panning and zooming.
(https://github.com/dbaeka/UMD-Latency-Research)

Designed visual tracking tool in Python which is scalable and synthesizes user interactions for latency analysis.