

FINAL YEAR PROJECT REPORT
FREE EMAIL TRACKING SERVICE FOR FREELANCERS

by

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This Report Presented in Partial Fulfillment of the Requirements for the Degree
of Bachelor of Science in Multimedia and Creative Technology.

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APPROVAL

This Project titled “**MailFly - Free Email Tracking for Freelancers**”, submitted by **Farhan Al Fuad and Faridul Haque** to the Department of Multimedia and Creative Technology, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Multimedia and Creative Technology and approved as to its style and contents. The presentation has been held on **15/05/2019**.

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Declaration

We hereby declare that, this project has been done by us under the supervision of **Dr. Shaikh Muhammad Allayear, Associate Professor and Head, Department of MCT** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.



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ABSTRACT

Freelancing is now one of the most popular professions all over the world. A report from Inc.[1] says that freelancers will comprise roughly 40 percent of the American workforce by 2020. This can give us an idea how many people are interested in this sector.

Every day, millions of people are entering to freelance business. But day by day it is becoming harder to compete with each other. To improve and go ahead of others, freelancers are adopting many free and paid tools and services daily. Those tools and services help the freelancers to get success on their business.

One of the common problems freelancers face is when they contact with a client or customer, they lose track on them. The most popular communication medium for freelancers is Email. Most of the new freelancers don't know how to promote themselves, how to send professional emails and how to track clients. They lose their chance to get new clients because they don't track their client's response. To help those freelancers, we planned to introduce an email tracking service with advanced options to solve the problem for the freelancers. Also, we believe in open source, that's the reason this project will be free for everyone.

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CHAPTER 1

Introduction

The idea of building MailFly was based on the real-life problem of us because we both are doing freelancing last 5-6 years. We know the pain and need of the freelancers very well. Using this course, we are trying to solve a specific problem which most of the freelancers are not aware right now but when they will know this, they would realize how powerful it can be for them. Using the email tracking function, anyone can understand when the recipient is opening the email and how many times they are opening. By measuring the number of opening numbers and last opening time, it can be told that if the recipient is going to reply this email or if he is interested in this.

The objective of project is to increase sales rate of the freelancers and marketers rapidly using email tracking and analysis. Not just the freelancers and marketers, every people can use this product to track their emails and they can instantly know how they are performing on emails and communication.

During our programming courses, we got an overall idea about the basics of User Experience Design and Development and different types of algorithm. Also, we had some previous experiences which helped us to plan this project and execute properly.

After making the plan, we discussed with our honorable teachers about the features we were planning and the possible hardlines which may rise while working. They suggested us some more ideas and showed us the exact path to work on this from start.

We divided the project into 3 different steps to make our job easier.

- a. Research and Pre-planning
- b. Selecting the base
- c. Testing the basic functionality and solving the basic problems
- d. Working on the final product

Research and Pre-planning: Since we did not have any idea how to track email, we decided to research on this first. The easiest way was to start with the competitors and see how they are doing their job. There was another reason why we started with competitor research. We wanted to see what others are providing, how they are doing it and how much they are charging for this.

First step of research gave us some initial idea to prepare our plan correctly. We understood that everyone is giving the email tracking service using the browser extension and API since

that's the only way to create this functionality. After getting the initial idea of how the competitors are working, we jumped into finding the features they are providing.

Most of the competitors are giving lots of features with email tracking which is good for advanced marketers. But no one is actually providing a service targeting freelancers. And the features they are providing will seem to be complex to any new freelancers or user.

We did not want to make a complex product from the first. Our basic focus was on freelancers and we planned the features based on that. That's the reason we planned our features in a simple and straightforward way.

Selecting the base: We needed to select the platform for email tracking service. There are many email service providers in the market right now. After researching on the most popular services like Gmail, Yahoo, Outlook, we saw that everyone has different mechanism. We didn't have time to work on all of the services at a time. That's the reason we decided to use Gmail as it is now the most popular email service provider.

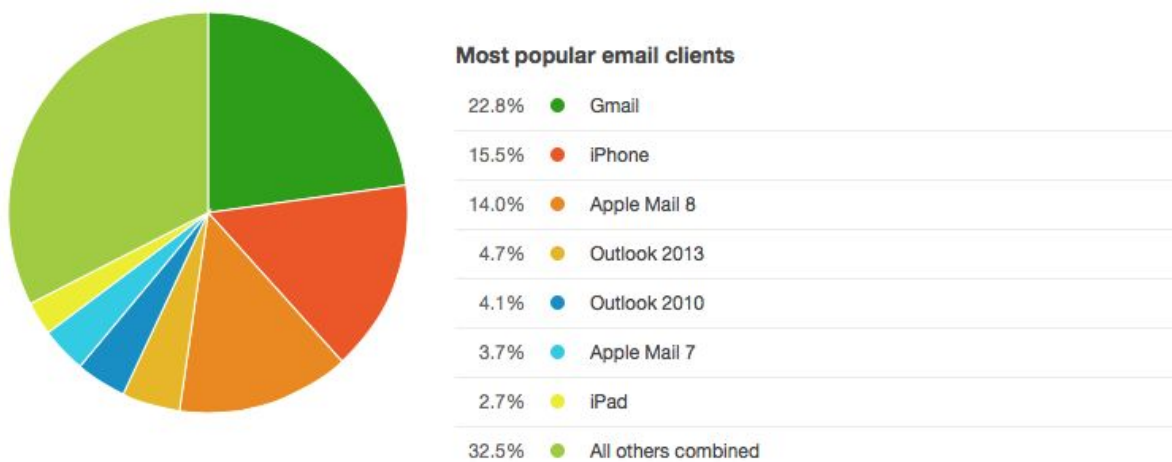


Figure 1.1: Gmail is the popular email client

After selecting Gmail as our base service, we started planning our features based on that.

Testing the base functionality: We could easily jump into the final product after the research. But since we did not work with this kind of projects before, we thought we should give a try on basic functionality first and test it. If everything works fine, that's great for us. If we find something which does not work, we can try to solve that problem or we can try to plan an alternative feature before we jump into the real work. It actually saved lots of our time.

Working on the final product: After the testing, we found few things which were not working and few things were not possible to be done by our experience and knowledge. We tried to solve those by searching on Google and creating alternative features. But most of the plans were same and most of the test worked fine.

Since we had many courses on Design and Development, it made our job easier to work on this project from the first. In this project, we had opportunity to work with User Experience and Develop user friendly product. We used all our knowledge what we have got from our courses to build this product successful.

To talk about broad uses of the project, We believe this product can be very helpful for the freelancers and marketers, specially the beginners who struggles to find the clients. Also, most of the students of our department are interested in freelancing from their very first classes. If they use it properly, they can easily get clients they want and they can get success.

Before we even code the front-end, we were needed to understand the Gmail's coding to fit our design and functions as our need. It was not difficult but it was completely new to us. So, we tried to understand how gmail works and how they have arranged their structure.

2.2 Backend Programming:

In our previous courses, we got an idea of PHP and Javascript. Since PHP is easy to learn and anyone can write this with some practice, we wanted to go with this language. Here are the few reasons why we choose PHP:

Most popular language for dynamic development: PHP is one of the most popular programming languages to create dynamic websites right now. Over 75% of websites and applications are now using PHP as their backend language. It is easy to understand and implement and easy to use.

Cross-platform support: It supports cross-platform, which is it's one of the most powerful parts. When we are using it for websites, we can use it for desktop applications too. It reduces our working cost and time by keeping the same quality we want.

It easier to use than other programming languages: People like us, who is not super professional in programming language, always want a programming language which is easier to learn and use. PHP solves the problem for us. It is very easy to understand and we could easily use it to achieve our target.

These are the reasons why we selected PHP as our programming language.

Why we choose Javascript: We planned to create some functions and features inside Gmail and to use those, we needed Javascript. Also, our plan was to create a Chrome extension first. To create that, Javascript was our first choice.

Combining this two languages, we started to create our functions which are important for this product.

2.3 Database Management:

In our product, we had most of the things which are dynamic. We needed to store few information to bring the most of our product. To do that, we needed a database management software.

In this project, we needed a few things to store and manage like:

- a. The time when sender is sending email
- b. The time when recipient is receiving email
- c. The time when recipient is opening email for the first time
- d. The time when recipient is opening email for the last time
- e. And many more things...

To store these kind of information, we used MySQL as our database.

MySQL is an open source software and it is very fast and cross-platform supported. It works perfectly fine with PHP too. It is easy to setup and management is also easy in SQL. That's the reason we selected MySQL for our database management.

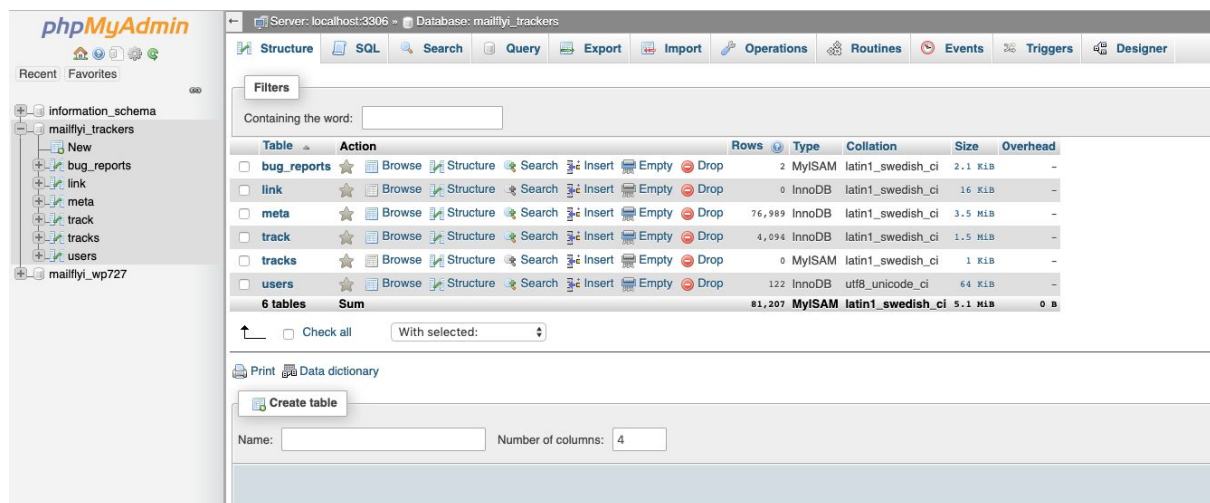


Figure 2.3.1: MySQL Database

2.4 Domain and Hosting:

Web Hosting is the storage space for the websites and domain is the address to reach that specific space inside internet. Since we were planning to go public and this project was needed access to the internet to check every step of work, we decided to take a premium domain and hosting.

But before choosing the domain and hosting, we need to check and understand a few things. To choose a domain, we need to keep 3 things in mind:

1. Domain is easy to read
2. Domain is easy to remember
3. Domain name relates and mostly explain the service we are providing

By keeping all those in mind, we selected MailFly.io as our domain name. It is easy to read, is to remember and it relates to our service since we are providing service related to email.

For selecting a web hosting, we need to see 3 things:

1. How many customers/visitors we may get
2. How is the response time of the hosting service
3. How bigger or smaller our project file would be

After analyzing these 3 points, we decided to buy a shared hosting to start and go with 10GB hosting and 300GB bandwidth per month.



Figure 2.4.1: How web hosting works

Another reason for buying a shared hosting is it affordable, pre configured and include a pre installed Cpanel. Cpanel includes all the necessary tools to manage a web app. It is secured, simple and very easy to use.

2.5 API:

We planned to track emails using a transparent png image with 1x1px width which won't be displayed. We needed a few more things like Sender Name, Sender Email, Recipient Name and Email to track everything correctly. To get this information, we actually needed a Read and Write access of our customer's Gmail. To get the access, we used Gmail API. It allowed us to get these information with letting the users know that we are taking these information.

In our privacy policy, we mentioned this very clearly and we promise to keep all the data safe for future uses.

CHAPTER 3

Design and Development

3.1 Finalizing Features:

Before we could start design and development, our first priority was to finalizing the features. Without finalizing the features, we would not have any goal to reach and we would not create anything. So, we finalized our basic feature list first to start. Here how it looked like:

1. Login
2. Registration
3. Multiple Account Access
4. One Click Email Tracking
5. Desktop Notification
6. Email Notification
7. Easy Access Dashboard

3.2 Project Plan:

After finalizing the features, we wrote the overall idea to make a perfect project plan. We wrote the steps we need and divided the tasks into small tasks to achieve easily. We also wrote down the difficulties which may increase lack of our knowledge and decided to discuss those to our project supervisor.

3.3 Pre Development Suggestions:

Before starting the design and development, we went to our honorable supervisor and shared our plan and feature plans. He gave us some solutions and shared how we should proceed to get the most of the features easily and effortlessly which actually helped us a lot since we were not that much experienced here.

3.4 UX Research:

Since our primary target of this product is to used by customers who are beginner or mid-level freelancers, the User experience of this product should be very friendly and easy. Another thing is, this product will be used inside Gmail and it will act as a part of Gmail service. To do that, our UX should be very understandable by the users. We started with analysing the Gmail's current interface.

3.4.1 Understanding Gmail Interface

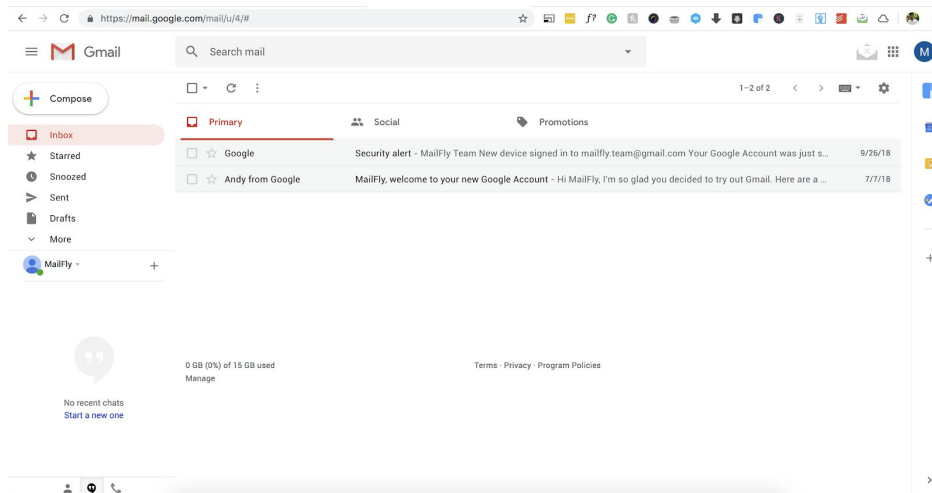


Figure 3.4.1.1: Gmail Inbox

Gmail recently updated their UI design. In the current design, on the left side, they kept the basic menu of Gmail. On the middle, they kept the emails and on the right side, they left the space for Gmail App. But there is also a space on the top of Gmail, beside the search bar. We decided to use that space for our extension since that is more noticeable.

3.4.2 Converting users to customers:

Our initial plan was to use a landing page to motivate the customers to use Mailfly. But there is a great chance that many customers will download our extension but won't use it or will forget to use it. That's the reason, we thought to use something to remember them the benefits of using MailFly. For that, we created a popup which is known as Welcome popup to us.

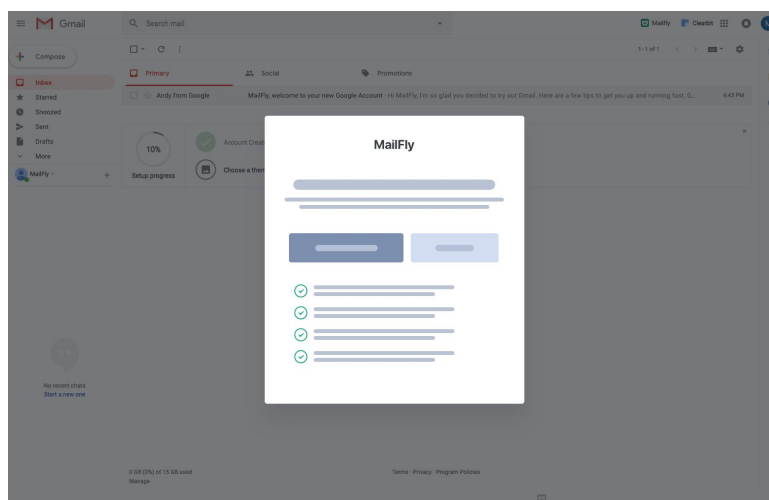


Figure 3.4.2.1: Welcome popup wireframe

3.4.3 Interaction inside Gmail:

One of the most challenging part of our UX research was to decide how will we guide our users to interact inside Gmail. Because, Gmail itself is a complete service already. We have to create something unique and noticeable so that users don't miss it. We decided to not to break the regular experience of Gmail's users.

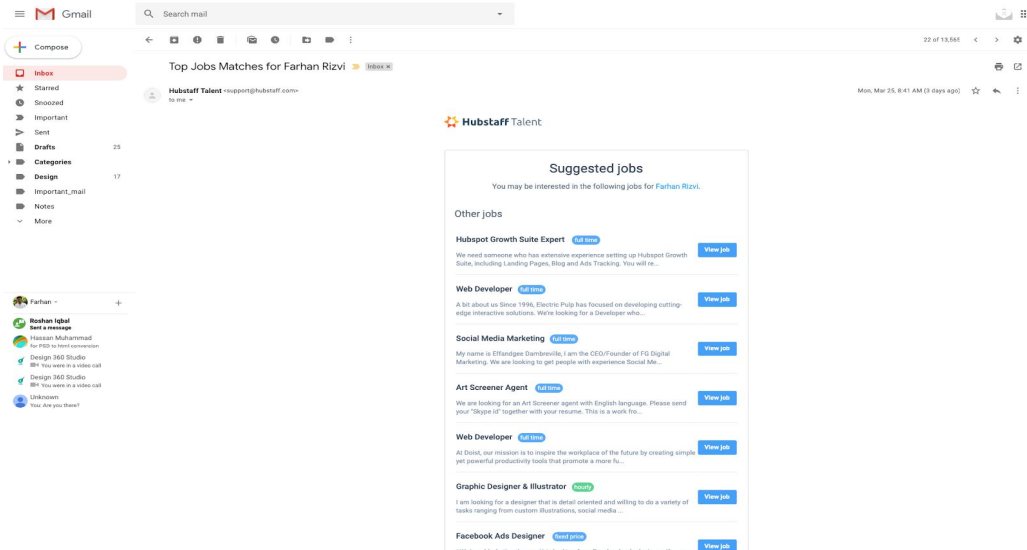


Figure 3.4.3.1: Interaction of Gmail

3.4.4 Email Sent, Seen, Unseen State:

The basic uses of our product is to let the customers know their email has been sent successfully, if the recipient seen it or is it still unseen. To do this thing very easily, we decided to use icons for different state which would be very easy to understand by just watching.

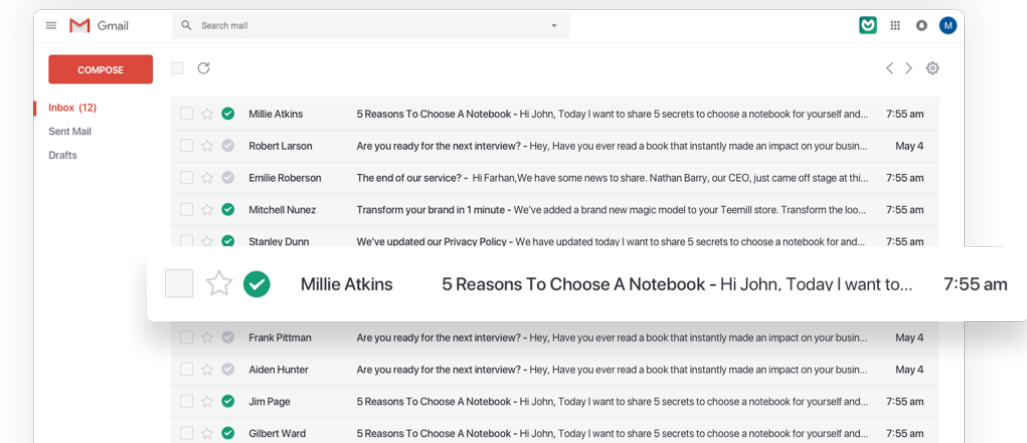


Figure 3.4.4.1: Status Icons

3.5 UI Design:

After finalizing the UX research and plans, we started working on the UI (User Interface) Design because based on this design, we would build our front-end look and we would integrate those with Backend. We started with the basic icons.

3.5.1 Basic Icons:

We had few icons and a logo to care about. Those are:

1. Logo of our product
2. Logo Icon to use on the top of Gmail
3. Sent Email icon
4. Unseen icon
5. Seen icon
6. Email tracking control icon

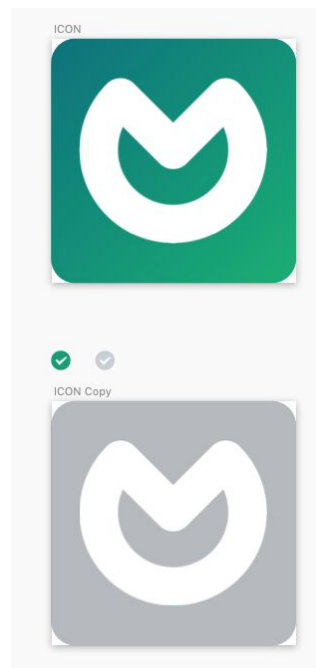


Figure 3.5.1.1: Icons

3.5.2 Designing inside Gmail Inbox:

To design inside Gmail inbox, one of the things we tried to care about was everything looks consistent with Gmail's UI also focused in our way. That's the reason, we went for minimal design. We kept the font same as Gmail. We tried to use icons which match with Gmail.

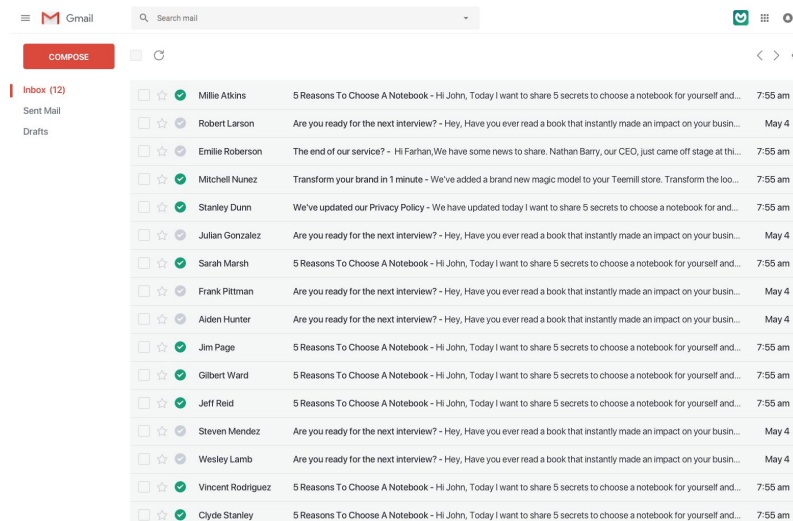


Figure 3.4.2.1: UI of Gmail.

3.5.3 Welcome popup design:

Customers are the heart of our products. To get customers, we decided to create a welcome popup when a customer is not logged in on our service. On this popup, we showed the benefits of using MailFly. There are 2 buttons. One is “Getting started” and another one is, “I am not interested”. If any customer clicks on “I am not interested”, we will not show this popup in next 14 days.

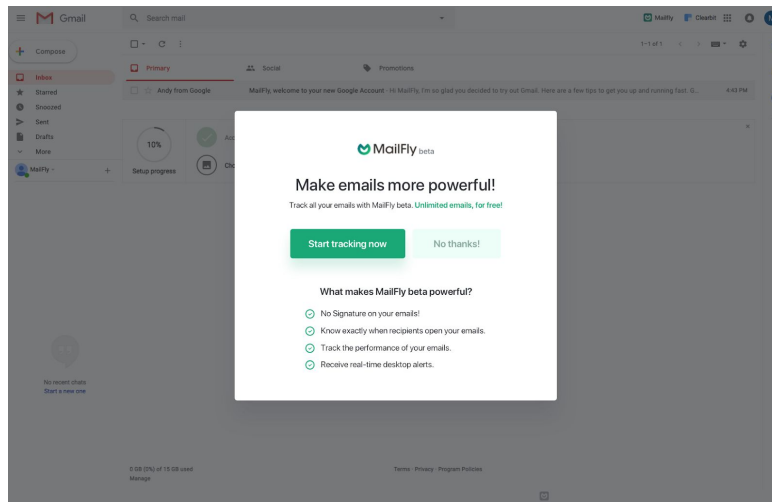


Figure 3.4.3.1: Welcome Popup

.5.4 Login screen:

We planned to keep everything inside Gmail. That’s the reason, we kept our login screen inside it. We placed our Logo icon on the top right corner of Gmail. When someone clicks on the icon and if he is not logged in already, we will see the login button. When a user clicks on the login, they will be redirected to Gmail login system and will be logged in through Gmail’s API. We also mentioned the benefits of using MailFly on the login screen.

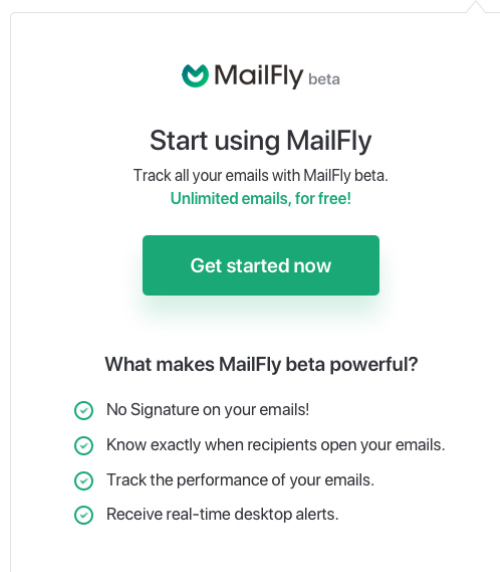


Figure 3.4.3.2: Login Screen

3.5.5 User Dashboard:

Since we planned to keep everything inside Gmail, our user dashboard also inside Gmail and most importantly user doesn’t need to leave their inbox and they can do all the important things without losing their concentration.

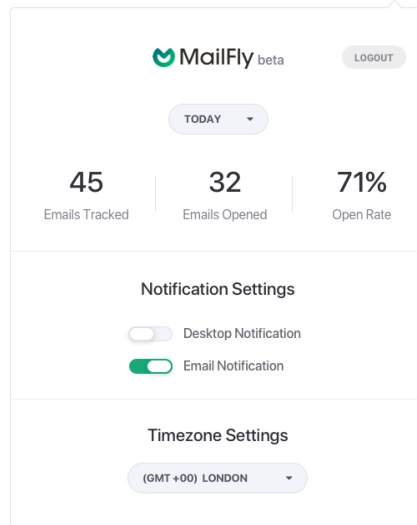


Figure 3.4.3.2: Dashboard

3.5.6 Landing page:

After doing the initial design for the product, we started working on the landing page design. For designing the landing page, we focused on the pain points of the users and showed how MailFly can solve their problem. The landing page has a call to action which leads the customers to the Chrome store and users can add this extension with just one click.

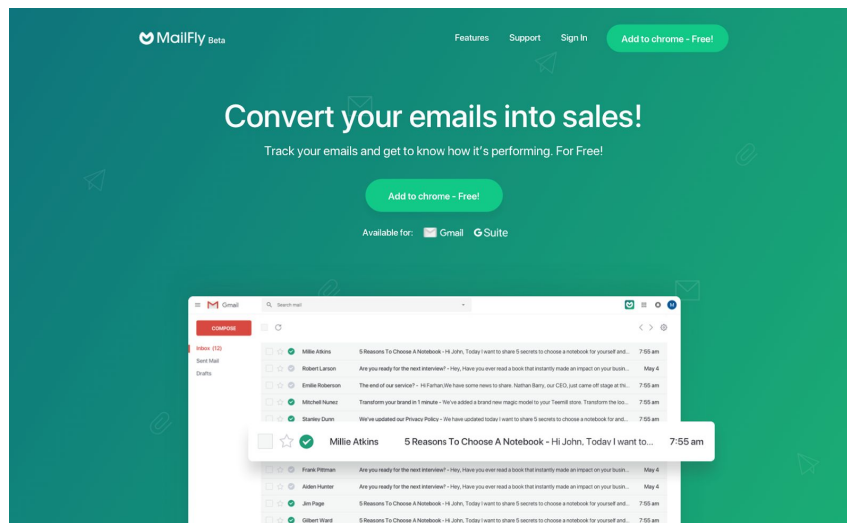


Figure 3.4.3.2: Landing Page

3.5.7 Email template design:

Since we planned to give email notification, we were needed few email templates like Welcome email, Notification email etc. We designed all the email templates too.

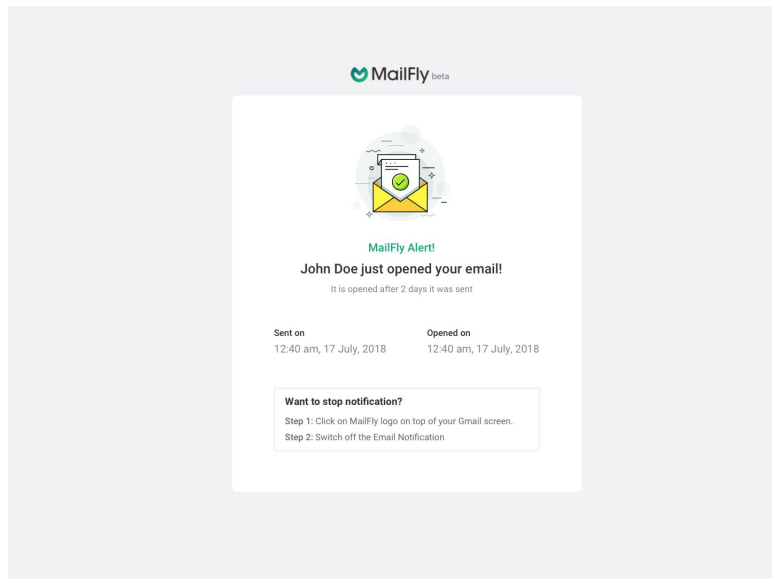


Figure 3.4.3.2: Email templates

3.5.8 Design for Chrome store submission:

Finally, at the end, we needed to create a few banners for chrome store submission. We created all the banners for submission.

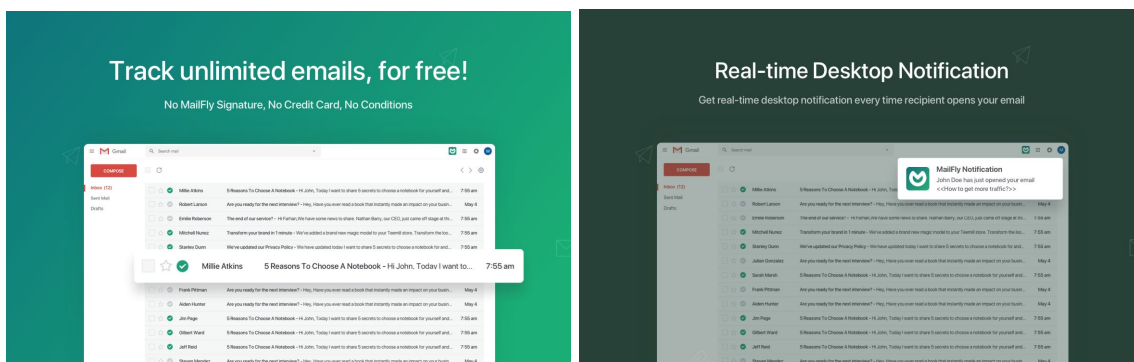


Figure 3.4.3.2: Store submission banner

3.5.9 Promoting to the Customers:

As a last step, we also planned to promote our product to the customers so that they know about it and they feel interested to use it. We planned to write a few blog posts on popular blog platforms and also planned to use email marketing for the promotions.

3.5 Development:

After creating all the designs for UI, we analysed the design once again to check if we were missing anything. After checking all the things, we jumped into the development process. We started with the front-end design first.

3.5.1 Front-end Development:

We designed all the UI on Sketch software. We sliced all the images we need for front-end. After that started looking into Gmail's structure again and we were creating our coding slowly. We were constantly checking our coding so that it supports Gmail perfectly. We used HTML (Hyper Text Markup Language) for building the structure, and We used CSS (Cascading Style Sheets) for styling our design and also for placing the elements perfectly inside Gmail.

```

<div class="main-wrapper home-1">
  <!-- ===== Navigation Start ===== -->
  <header class="navigation navigation__transparent navigation__right">
    <div class="container">
      <div class="row">
        <div class="col-12">
          <div class="navigation-content">
            <a href="#" class="navigation__brand">
              
              
            </a>
            <button class="navigation__toggle"></button>
            <!-- offcanvas toggle button -->
            <nav class="navigation-wrapper">
              <button class="offcanvas__close">X</button>
              <!-- offcanvas close button -->
              <ul class="navigation-menu" id="nav">
                <li class="navigation-menu__item">
                  <a class="navigation-menu__link" href="#feature">Features</a>
                </li>
                <li class="navigation-menu__item">
                  <a class="navigation-menu__link" href="#feature">Support</a>
                </li>
              </ul>
            </nav>
            <!-- nav item end -->
            <div class="navigation-button navigation-button-couple">
              <a href="#" class="nav-cta-btn navigation-button-couple__trans">Login</a>
              <a href="#" class="mailfly__btn nav-cta-btn navigation-button-couple__fill">Add to chrome - Free!</a>
            </div>
          </div>
        </div>
      </div>
    </div>
  </header>
  <!-- ===== Navigation End ===== -->

  <!-- ===== Hero Start ===== -->
  <section class="hero">
    
    <div class="hero-wrapper">
      <div class="hero-content">
        <h1 class="hero-content__title">
          Convert your emails into sales!
        </h1>
        <p class="hero-content__caption">
          Track your emails and get to know how it's performing. For Free!
        </p>
        <a class="mailfly__btn mailfly__btn--lg" href="#">Add to chrome - Free!</a>
        <span class="hero-content__availability">
          
        </span>
      </div>
    </div>
    <div class="hero-media">
      <picture>
        
      </picture>
    </div>
  </section>

```

Figure 3.5.1.1: Basic Structure of a HTML document

3.5.2 Backend Development:

After finalizing the features, we wrote the overall idea to make a perfect project plan. We wrote the steps we need and divided the tasks into small tasks to achieve easily. We also wrote down the difficulties which may increase lack of our knowledge and decided to discuss those to our project supervisor.

Working on the backend development was challenging for us since we were not very experienced on this kind of high-end product development and management. We tried to take some help on project planning from our Honorable Project Supervisor and some other known experienced developers.

After creating a development plan, we started studying on the features and we also tried to find out what should be done first and what should be done later. After finalizing that, we start working on the back-end part of our product.

After creating the elements for front-end, we started working on the backend one by one. Firstly we build the database for our service and created all the necessary tables inside MySQL. After creating the database tables, we connected it with our core backend.

After setting up the connection with the database, we started working on the development of the tracking pixel. After implementing tracking pixel successfully, we build the desktop notification with Push notification.

After setting the push notification, we worked on the email notification. Our initial target was to give real-time email notification. We used free a SMTP service called Elastic Email for sending our emails to the customers.

When email notification was done, we started working on the login system using Gmail API. We also created option for multiple account login here. After finishing the login system, we jumped into implementing the data on the dashboard.

Finally, when we are done with all the functions, we created the package for Chrome store and prepared it to test it locally.

3.7 Structure of the Database:

To build the product with easier maintenance and control, we planned our database based on current use and based on some future possibilities of data.

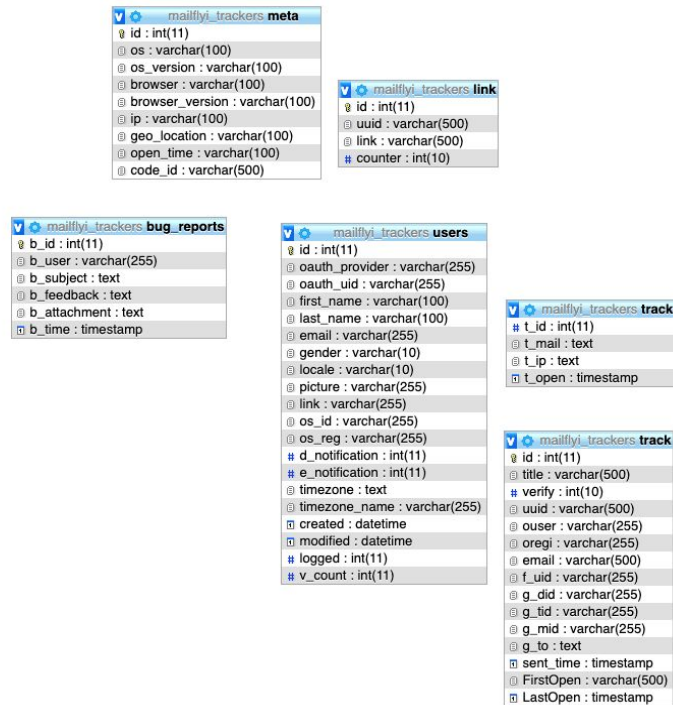


Figure 3.7.1: Database Design & Tables Relationship

3.8 Testing and Debugging:

After completing our development process, we started testing the extension locally. We tested the service with different accounts. We also invited a few of our friends to test this. In this way, we found some bugs and issues and we continuously solved the issues.

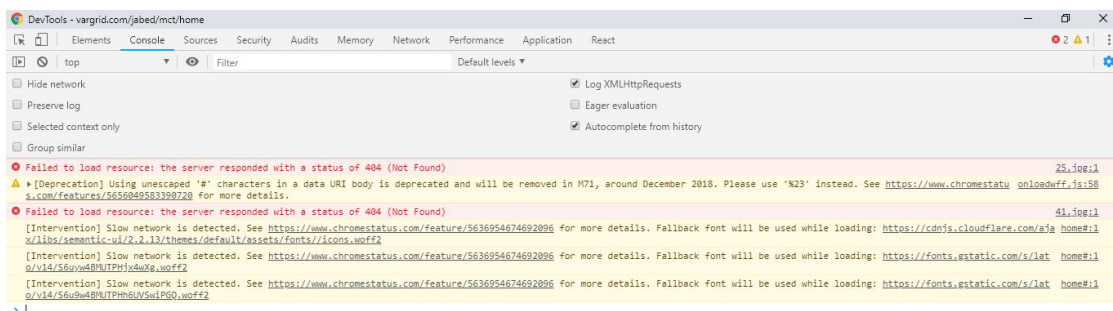


Figure 3.7.1 Debugging console of Chrome

CHAPTER 4 Product Features

Our target was to create the simplest system to track emails and increasing the conversion for the freelancers and marketers. We designed and planned our features based on that goal. Also, we tried to keep things focused and targeted, that's the reason we built some specific features for our product.

4.1 Features

We planned the feature list carefully so that it becomes easier for us and all features get connected to each other on the development process.

4.1.1 Login/Registration: The login and registration to use MailFly is actually the same thing since we are using Gmail API and we have not used any different registration button. Both the login and registration works from a single button and when someone clicks the login button, we automatically check if the email already exists to our server. If it doesn't exist, we store it as a new user. Otherwise, the user will be logged in and he can see his previous data in his dashboard.

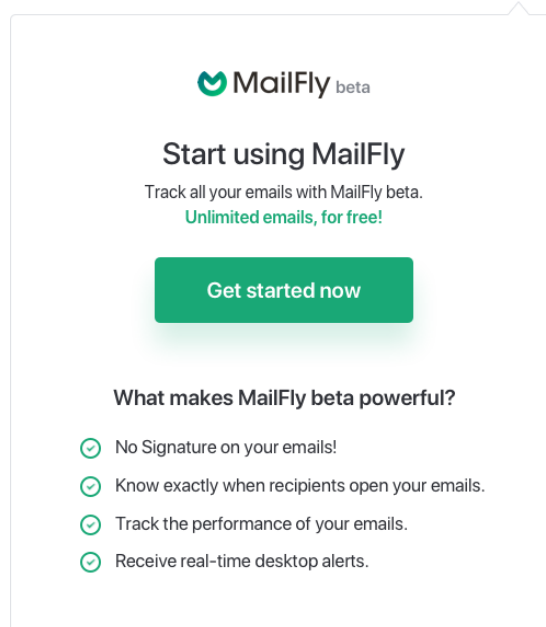


Figure 4.1.1.1: Login

4.1.2. Multiple Accounts: We understand that now a days, most of us have more than one Gmail accounts. To support these kind of customers who has multiple accounts, we introduced multiple account support. Using multiple accounts, it will allow the customers to logged in at the same time from multiple Gmail accounts without having any problem.

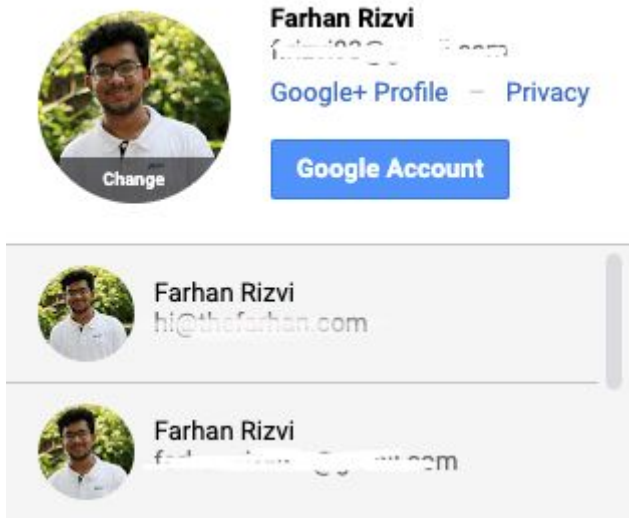


Figure 4.1.1.3: Multiple Accounts

4.1.3 Easy Access to Dashboard: All of our competitors have a different dashboard for their service and that’s fine when there are multiple features and things to control and care about. But, since we tried to keep our things straight forward from the first, we built the dashboard inside the Gmail inbox.

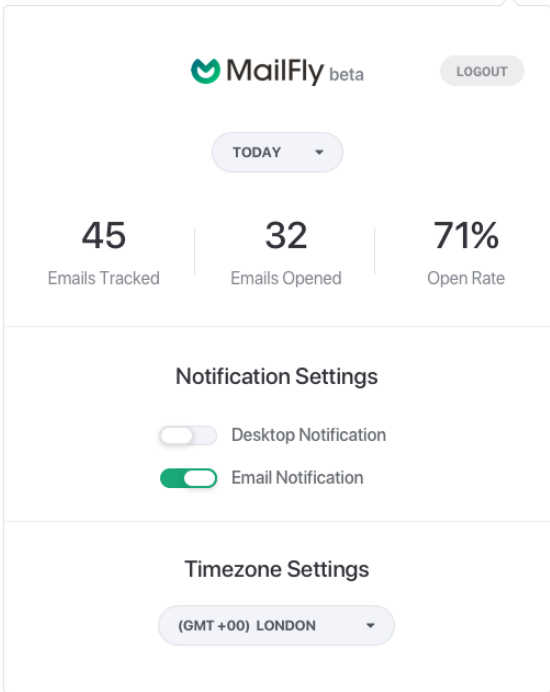


Figure 4.1.3.1: Dashboard

4.1.4 Easily Change Settings: Within the easy dashboard access, any user can easily change and control settings. The basic settings currently we have:

- a. Live report checking

- b. Timezone settings
- c. Notification settings

4.1.5 Desktop Notification: This is the primary notification system of our product. When a customer sends an email and when the recipient opens the email, the customers get a notification immediately.

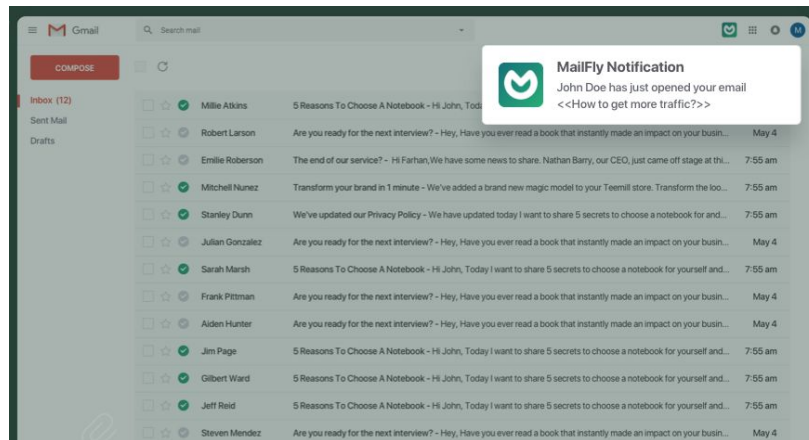


Figure 4.1.4.1: Desktop Notification

4.1.6 Email Notification: There is a great chance a customer can miss the desktop notification. Maybe he is not on the desktop or laptop, or maybe he just missed the notification because of some other works. To get the most of our service, we introduced email notification. Customers get an email when a recipient opens the specific email.

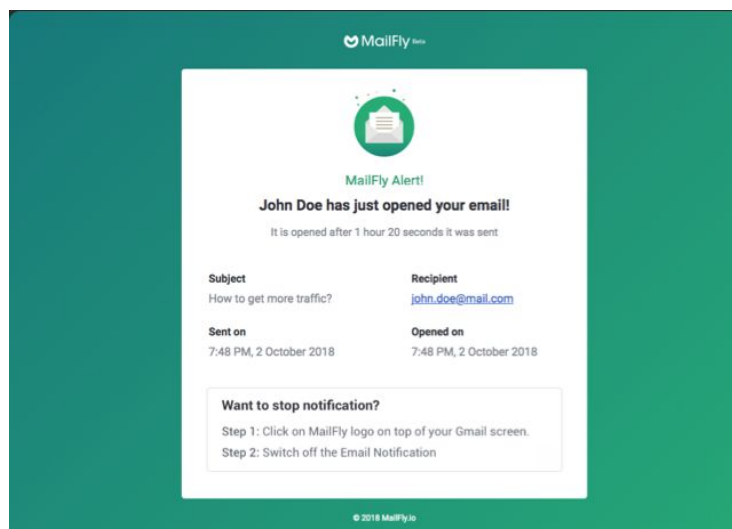


Figure 4.1.1.5: Email Notification

4.1.7 One Click Installation: To use our product, it is easy to setup everything. With just one click, any user can add the extension from Chrome store.


Free Gmail Email Tracking - MailFly
Add to Chrome

Offered by: MailFly

★★★★★ 5 | [Social & Communication](#) | 49 users

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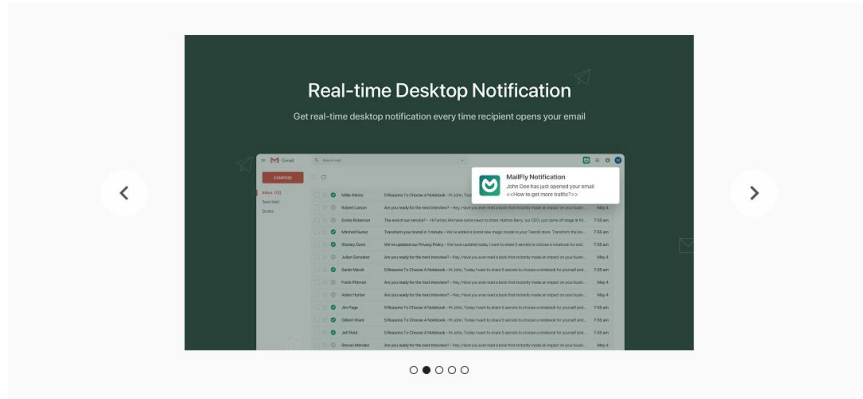


Figure 4.1.1.6: One click installation

4.1.8 Completely Free: Where most of our competitors don't have free version or when they have free version, they include their logo inside the email. And that looks really odd. The recipient easily knows that their email is being tracked and they may feel uncomfortable. With MailFly, anyone does not have to worry about that because we decided to make MailFly open-source and it will be always free with all the premium service.

4.2 Controls:

We have created easy controls for our customers.

4.2.1 Timezone Setup: To get the notification in customers local time, we have created timezone setup. Any user can easily access to timezone setup from the Dashboard.

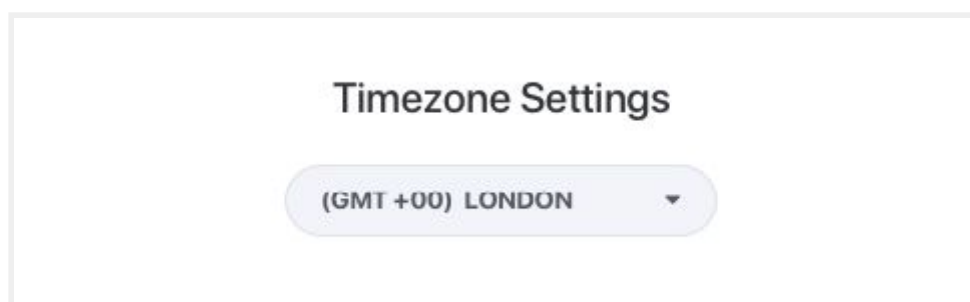


Figure 4.2.1.1: Timezone setup

4.2.2 Real-time Data: To let our users know how their emails are performing, our dashboard has real-time data. Currently we are showing 3 data:

- a. Emails sent
- b. Emails opened
- c. Open rate

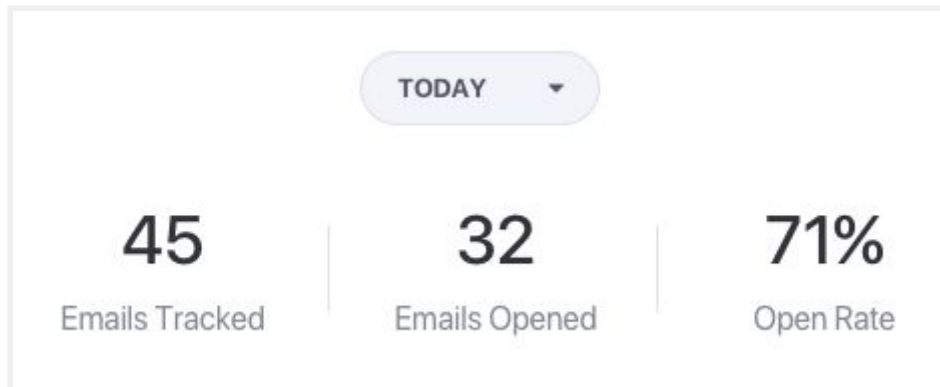


Figure 4.2.2.1: Real-time Data

4.2.3 Notification Setup: Our users can easily control Desktop and Email notification with just one click. Users can control both notifications differently.

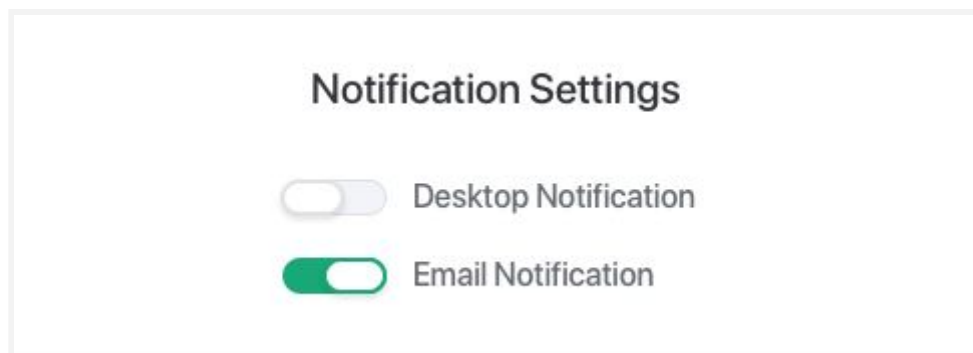


Figure 4.2.3.1: Notification Setup

CHAPTER 5

Discussion

5.1 Tracking idea:

MailTrack is one the leading email tracking service provider in this industry. They have over 90,000 customers right now. They are our primary competitor in this industry. We started our research on them first. Finding the tracking idea or system was the main challenge for this project. We got the idea of using a transparent image to track email from our competitors.

5.2 Comparing with Competitors:

Our competitors have many features to their service. All the competitors are focused on Email Marketers and Email marketing agencies. But we wanted to go in a different path where no one is looking or maybe not giving too much attention. And that is Freelancing.

Every year the number of freelancers are increasing. Few expert freelancers are using the services from our competitors. But most of their experiences are not too smooth because the features are not friendly to them. We tried to adopt few features from our competitors and tried to make those unique and friendly to the freelancer community. We didn't want to ignore the marketers too. But since we don't have huge resources and experiences, we left the features to the minimal where both Freelancers and Marketers can use our service.

Where most of our competitors are giving free service as trial and some are giving with some limitations. But the most common things they are doing with free version is they are adding their signature at the bottom of every email we are sending with tracking features. This is very uncomfortable for both the sender and recipient. We wanted to break that too. Since freelancers will communicate with lots of new clients every day and if they send emails with email tracking signature, the trust of the client will be gone at the first place! And that's the reason we haven't added any signature or anything to any email our customers are sending.

5.3 Dashboard inside Gmail:

We got the idea of using the Dashboard inside Gmail from Clearbit. Clearbit allows to search different emails and change settings without leaving Gmail's interface. But Clearbit uses a different style of showing their Dashboard than us. We used a modal where we fit the dashboard it takes very less space of the interface.

CHAPTER 6

Conclusion

The goal of every freelancer is to get as much client as possible. They want to earn more and more with less effort. And that's the reason they skip the regular job and comes to freelancing.

But the pain points of every freelancer is to find clients. Most of the freelancers do not know that they lose the chance of getting new clients because they do not know how to communicate with the clients. They also do not understand if the client is interested or not.

There is no specific tools for the freelancers which tell them how to find the clients they want or how to understand if any client is interested to them. We wanted to bring a solution here. In our primary research, we saw that most of the freelancers do not know that good email communication can be a great source to find clients for them.

The reason is, clients are busy. They often try to hire freelancers and most of the time they get busy with their business. If an interested freelancer sends an email to the client and if the freelancer knows that the client has opened his email several times, that can be hint that the client is interested but he is taking time to take decision or maybe he has just forgotten.

And there comes MailFly. Using MailFly, anyone can understand if their emails are being opened or not, how many times someone is opening the emails etc. Using these metrics, most of the time users can understand if the recipient is interested to their emails or not.

Most of the competitors who are giving similar service, are not focused on freelancers and they are not free most of the time. They have lots of features which are not related to freelancers and here MailFly is different. MailFly is a targeted service for freelancers and it will be free for ever with premium services.

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