Final Project Final Documentation
PayDay

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Programme: Enterprise Computing

Module Code: C472

Project Title: PayDay

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Executive Summary

Executive summary of the project.

PayDay was born out of the necessity of saving time and easier tracking of timesheets. PayDay is a time management system for employees and managers that digitizes timesheets and helps keep track of employee hours. This ultimately speeds up the processes of paying employees their wages. PayDay would extremely benefit the SMEs as these companies are usually still using the pen and paper or excel approach when dealing with keeping time.

PayDay essentially targets the SMEs around the world. As we are based in Dublin it would be easier to find our customers here first. Once we have a paying customer base we can then redirect the cashflow to marketing outside of Ireland. Before this actually happens we will rely on passive marketing whether it be our website, social media or word of mouth.

PayDay is a simple integration into the worklife of our customers. An employee is linked to a manager and once the employee fills out the timesheets the manager can see his/her times which shall be approved or declined by the manager. Once approved they are sent to Financing for payment.

For the development of PayDay prototype we have used tools such as Django and Bootstrap. Django uses the MVT model which talks to each other to output data onto the HTML template. The models are used in creating the database fields. Views are used to generate the templates. We used bootstrap to increase the cross platform usability.

Management report

As what we currently have developed is a prototype with limited functions. We would require a lot of development in order to bring it to market. Firstly, we would need to be extremely sure that the timesheeting functions are robust and work correctly. This requires more testing and user testing as well. For the market product we would need to get over the challenge of outputting employee timesheets for the manager. Each correlating employee timesheet should be visible by the manager.

Our next step would be email notifications. We are envisioning a notification to be sent by the employee once they click “submit for approval” this would then call a function to send a notification to their manager for approval. The notification could be either email notification or an in app bot pop up to help notify the manager. The notification system would work the same way when the manager approves the timesheet. It would be automatically sent to the financing department for review and payment. Once this system is completed we can release the product under a Payday1.0 version into the market. Limited functionality will be priced at a lower rate.

Another big selling point of PayDay is the ability to add roster notes. Once the timesheet function is fully developed and tested. This would greatly increase our customer base as we then can tackle retail industry and other industries that require rostering and adding tasks and notes to each employee's day of work. When rostering functionality is added we can release it under PayDay2.0 customers who were with us before this update will not pay anything extra as prices will go up slightly after the functionality addition. New customers will have to pay that subscription price.

Since there's a potentially huge increase of customers once the PayDay2.0 is released we would need to extensively test our cloud provider performance in order to ensure no disruptions in service. During all releases we would test UI usability and accessibility.

Vincent Lloyd Yuson - Blogs

Mihail Gaidau - Blogs

Project Timeline

Weeks 1-4:

- Initial business idea research to take place.
- Meetings with supervisors and analyzing feedback.

Weeks 5-8

- Project proposal submission.
- Proposal to be presented to the board where we will gain very valuable feedback. This will be beneficial for the rest of the project.
- Both Team members have a specific aspect of the project to be presented by them. This is based on their strengths.
- Coding bootcamp to improve and remember coding skills.

Weeks 9-12

- Brainstorming initial technical delivery.
- Creating Models.py file
- Implementing more functionality.
- Surveying and interviewing potential customers.

Weeks 13-20

- Improving technical product

- Models.py iteration and bug fixing
- Prepare and submit initial-delivery document.
- Adding serializers and Django Rest framework
- Whiteboarding sessions have taken place.

Weeks 21-24

- Improving current functions and designing and implementing our own UI design .
- Expanding and improving backend functionality.
- Looking into cookie authentication regarding different user log in.
- Adding extra functionality such as enabling such as adding jobs and viewing all jobs added.

Weeks 25-35

- Conducting web-app testing and bug-fixing.
- Further technical development.
- Consideration of using REACT.
- Adding Bootstrap UI and altering the design in order to suit our needs.
- Further work on the interface for greater accessibility
- Final Documentation work has begun.
- As both of the team members has his own strengths and weaknesses we will work in close collaboration and apply our strengths to different tasks and sections of the project
- Fixing UI links and buttons.
- Fixing visual defects while writing the documentation.

Business Case

A clear description of the product/service

PayDay is a time management system that digitizes timesheets. The idea behind PayDay is to speed up the process of paying employees. Employees will have an easier time submitting timesheets, managers will be able to easily keep track of the timesheets of the employees they are in charge of, and the finance department will have an easier time paying employees as all the timesheets will e in one format and all located in one place, clearly indicating which timesheet belongs to which employee. This will increase efficiency and in turn, will save time and money for the company. What payday will do for its customers is save time, money, and gives the customer's employees an easier time when trying to submit timesheets.

Once an employee or manager registers for Payday, they must fill out their profile. For employees, they must fill out their name employee number, and also the manager who they are working under. For managers, they only have to fill out their name and manager ID.

Both Manager and employees will have to fill out the same timesheet. To ensure that both managers and employees are able to clearly understand how to fill out the timesheet and to save as much time as possible in regards to filling out the timesheet, we will limit the number of fields that the managers and employees will be required to fill out. Each timesheet will show their salary for that job. Both managers and employees will only need to fill out two fields, the date the job was carried out and the hours worked on that job. The Only difference between the two, is that manager timesheets will not need approval, while employee timesheets will need approval from their manager. Once the timesheet is approved it then goes to finance.

Approval of timesheets will be restricted to managers of the company. The timesheets that have to be approved by managers will be under each employee's name. Each manager will have a list of employees that are in their department, and under each employee, will be their timesheet. If a manager or the owner forgets to approve timesheets, they will be sent an email or notification on their phone stating that there are timesheets to approve. An email will be sent to each manager to remind them to approve the employee timesheet.

The timesheets that are approved are then sent to the finance department. The timesheets that the finance department will receive will be categorized by departments. Here they can click on the timesheets and see the amount to be paid to the employee.

The rostering board will be updated on a weekly or monthly basis, with times the employee is working. Employees will also be able to request days off and swap shifts with fellow employees. All of this will only be possible with the approval of a manager.

A value analysis of the product/service

The target users and customers

The type of market we are selling our product, PayDay, is to a niche market. A niche market is a specific customer segment. The customers we are targeting are owners of SMEs. although the customers we are targeting are owners of SMEs, the users of our product are the employees of the owner of the company.

Employees are the main users of our product. It is tailor-made for them so that they are able to have an easier and quicker time filling them out and overall spend less time on the payroll process. They are able to input their own time, see how much they will be paid before tax, and also their roster for the month.

In order to be successful, we will need to equally convince both the owner of the SME and their employees of the benefits Payday will have on the company and the employees. We need to target both as an owner won't be able to incorporate a product like a PayDay without the consent of their employees as they will be the ones using it. Employees won't be able to incorporate PayDay into their company without the owner agreeing to it. It is only through the equal agreement and interest of both employee and employer can PayDay be successful.

Customer Relationship

In order to get customers interested in our product, we plan to visit 5-10 different companies and give our sales pitch to them personally. Since we are a startup company this would be very necessary to build both a relationship and a reputation.

Once we have built a sufficient amount of customer base and reputation, and we have become somewhat well known, we plan to push marketing to platforms such as Google ads. The type of reputation we are looking to attain is that we treat our customers professionally, we thoroughly help with their problems, and have a close relationship with our customers.

To keep our customers onboard, we plan to give a permanent discount to the first 20 companies that subscribe to our product, we would also give our personal contact details to the company owners. That way if there is a major problem, they can contact us directly, the owners/developers.

In order to continuously improve our product, we are going to set up community feedback on our website. Here customers can write/discuss any bugs they find in the system. If they do find any bugs in the system they will be rewarded with discounts for our product.

The type of relationship that our company would want with its customers would be, personal assistance. These would include human interaction, call centers, and email/forum.

How does it help a user/organization to achieve some goal?

SME Payroll process

From primary research, we have found that most SMEs have the same payroll process. First, we start with the employees filling their own timesheets. They accomplish this through either using pen and paper (paper timesheet provided by company) or using excel timesheets. This is passed down to their manager for approval. The manager sends the approved timesheet to finance or if it is vetoed, they go back to the employee and give the reason it has been vetoed.

We found that each company differs in the type of timesheet that is passed down to their manager. Some companies will only accept paper timesheets created by them, and others will only accept excel timesheets with a template they have created. Very rarely will a company accept both paper and excel timesheets.

Looking at the process, it looks like there are no problems with it. It looks like an easy and efficient process. It is when the process is put under a microscope is where you will find that it is very time consuming and hard to deal with.

With paper-based timesheets, the company has to first print out the timesheets, then they must distribute it to employees that work in the company. There is also the fact that an employee might not be in for the day they give out the timesheets. The employee must then go out of their way to acquire the timesheet.

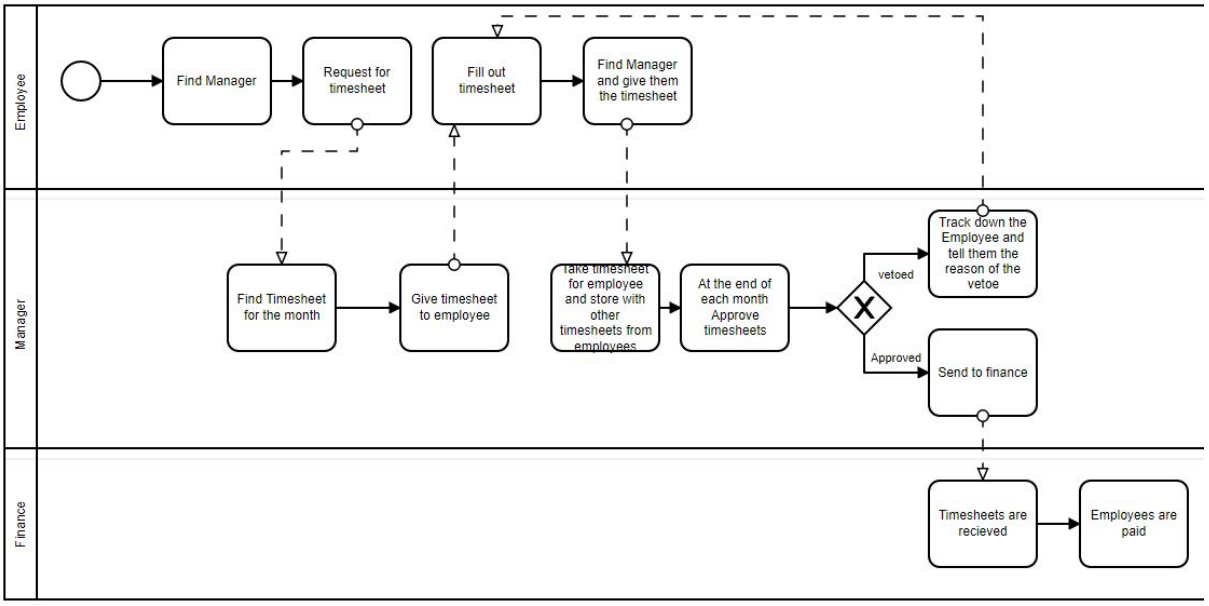
The employee then fills out their timesheet for the week. After they have successfully created their timesheet, they must track down their manager to get it approved. Not always knowing where the manager is at all times, this may take a fair bit of time to track them down. Once the employee finds their manager, the manager then accepts the timesheet and stores it to approve all the employee's timesheets all at once.

Once the manager has all the timesheets of all the employees under their supervision, they then approve or veto them. If the timesheet is vetoed, they must track down the employee with the vetoed timesheet and explain the reason it was vetoed. This can be very time consuming for the manager as there would be times where, depending on the number of employees under their supervision, a big number of timesheets could be vetoed.

The manager would then track down all the employees with the vetoed timesheets. The process repeats until the timesheets have been approved. Timesheets that have been approved are then sent to the finance department. The finance department must then file them correctly as employees get paid on a monthly or fortnightly basis and timesheets get passed down to them on a weekly basis. Filing the timesheets would take a long time as it requires a lot of attention to be done right.

With excel timesheets, it is more efficient but not by much. It is still an archaic way to handle timesheets. You also put more stress on your finance department as they could not be the most inclined technologically, and they're forced to create an online filing system for each employee in the company and maintain it.

Paper/ Excel timesheet



PayDay payroll process

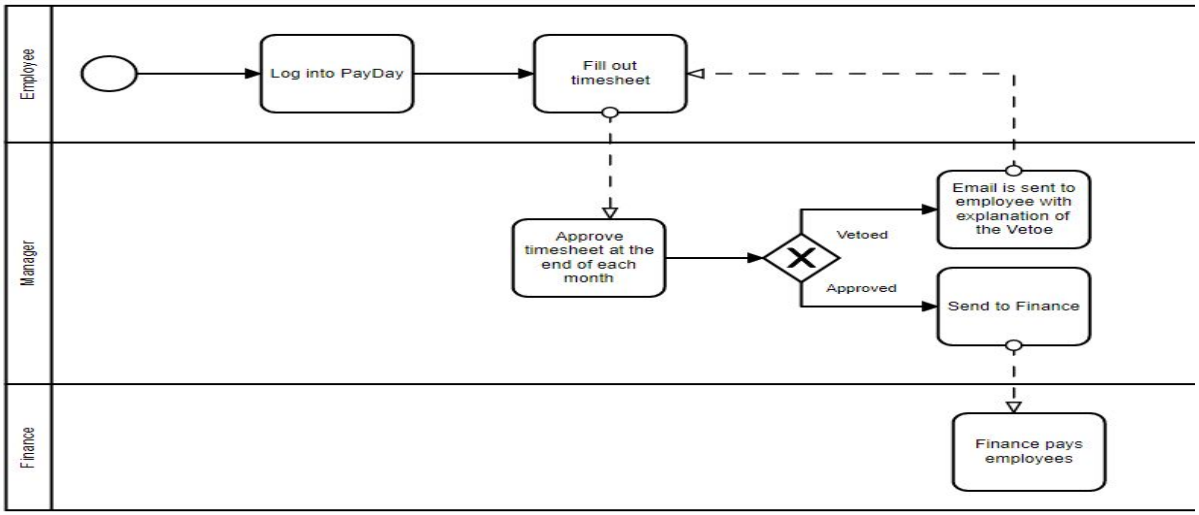
With our product PayDay, the payroll process will be greatly sped up and will further simplify it for all the actors in the process. Which in turn, will increase productivity and also save the company money.

The process will start with the employee searching for our website with their smartphones, tablets, computers, etc. In order to log in to their profile, they will need to input email and password. The employee would then click on the “timesheet” option and input their times and also the job they have completed. The employee will then click on the “save” option to save the information they have inputted. They log out then repeat the process the week after with the information already being saved from the week before.

Once all the employees under the manager’s supervision have filled out their timesheets, the manager will approve or veto them. If the manager approves the timesheet, it will be sent straight to finance where it will be automatically categorized for them. The timesheet will be categorized by the departments in the company. The finance department will only need to click on the timesheet to see how much needs to be paid to each employee.

The process is short, quick, easily understood, and greatly simplifies the payroll process. It also minimizes the amount of time your employees spend on timesheets. The less time they spend on timesheets, the more time they can spend on projects that will add value to the company. Employees will benefit the most as they will only need to input their hours worked and the job they have done. They will have an easier time filling out the timesheet. Minimizing the amount they have to input into the timesheet, will maximize the time and efficiency of filling out the timesheet.

PayDay Process



Market analysis of the target market

The likely market size

The market we are targeting for our product, Payday, are small to medium enterprises, SMEs. According to the CSO, in Ireland, there are about 250,033 Enterprises[1]. SMEs accounted for 99.8% of the entire enterprise population. That's a staggering 249,532 in Ireland alone.

Since we are based in Dublin, we will be restricted to companies in Dublin, in the meantime. From my analysis, with Dublin having the largest population (people and companies), there will be 60 - 70 percent of our market in Dublin.

Since our company PayDay is based in Dublin, we will start marketing in Dublin. As our company grows we will branch out to other parts of Ireland, Cork being the next county we target. Dublin will be a good starting point as Dublin has the largest company population. Once we have established ourselves in Dublin, it will be an easier task to branch out into other counties.

Our product is not designed for a specific type of SME. it can be used by a wide range, from office-based SMEs to construction types of SMEs. In terms of the market for our product, there is no shortage whatsoever. Being based in Dublin, where most SMEs are located, there are no problems with communicating with our market. Both team members already having worked in the industry, will have a decent amount of connections to start out with. We will only be limited by the number of hours in a day.

There is also a minuscule amount of known products such as PayDay in the market. The ones that are already established mainly focus on large enterprises. Therefore, SMEs get looked over and ignored. With our product aimed at SMEs, there will be no problem in finding enterprises that will want to buy our product.

The value propositions

The jobs of our customers are: ensure their employees get paid on time and correctly, make sure there is not excessive workload caused by the payroll process, convey that the image that they are a forward-thinking company that embraces technological advancements and most importantly reduce the amount of time and stress employees have with the payroll process/timesheets.

Our product would ensure our customer's employees are able to carry out the payroll process in a very quick and stress-free manner. The value proposition of PayDay solves the problem of the old inefficient methods of timesheets, the paper/excel timesheets. With our product, you are able to get through the payroll process on time, quickly, correctly, and efficiently, and with no confusion with timesheets like employees filling them incorrectly. With our product, employers will save time and ease irritation from something as simple and essential as paying employees.

Our product PayDay is easily operable and very accessible. It saves time the actors of the payroll process spends on timesheets and greatly reduces the risk of accidentally underpaying/overpaying an employee due to the misunderstanding of timesheets. PayDay will display in a clear manner how much employees will be paid.

The interface for our product will be very simple and will only contain what is needed so it will be very easily navigable, even to those who are not the best with technology. We will focus on minimum user input to maximize efficiency and minimize confusion employees might have with our timesheets.

With our product, Payday, we are essentially changing the way companies do their timesheets for the better. We are creating a way to get rid of any confusion, and speed up the process drastically. Both employees and owners of SMEs would happily embrace PayDay as it means:

1. Employees get paid correctly and on time.
2. Minimizing input in our timesheets would minimize time spent on the timesheet and minimize confusion employees might have with the timesheet.
3. The finance team, employees, and managers will be able to focus on other pressing matters, other than the payroll process.
4. PayDay would save a lot of time for companies, and time = money

The target users segments

The target user segments are employees of an SME. it is these employees of SMEs will be making full use of our products. More specifically, its employees of an SME which still use archaic methods to pay their employees. Archaic methods being paper timesheets that have to be hand-delivered to their manager/ finance department or excel based timesheet that is printed and given to their manager or sent by email.

It is this customer segment we are targeting and who need our product the most. They spend massive amounts of time on the payroll process, employees don't get paid on time, they get underpaid/overpaid, always problems with missing timesheets, and general confusion about how the entire process works.

With PayDay, we are putting an end to all of the problems mentioned above. Employees will be able to easily comprehend the process, no missing timesheets, employees will get paid on time, minimize time employees spend on the payroll process, etc.

The proposed revenue streams

To get constant revenue from PayDay, we are planning to set up a subscription pricing model. Companies will be able to pay on a monthly, every 6 months, or yearly basis. Giving companies many options of subscription will only serve to entice companies to buy our PayDay. Every company is different and we have to be able to accommodate payment for as many companies as possible.

With a subscription pricing model, we are able to have a constant flow of revenue. Since it is not a once-off payment, we don't have to worry as much about making constant sales. We are able to secure the longevity of the company because of the constant inflow of revenue. However, in the early stages of our company, our main concern is to get enough customers so that we make a profit. In order to do this, we will need many more customers in the early stages than you would need with products with one-off payment pricing models.

A strategy we are planning to incorporate into our pricing model is the purchase of extra licenses. We will sell our product and 10 licenses for a fixed subscription price. If a company wants more licenses we will sell it to them as an additional price on top of their chosen subscription. We will sell licenses in groups of 10, 20, and 30.

Key Resources

Physical

Partnerships:

Our platform has to be accessible online therefore we need AWS's scalable processing power, database, and load balancing services. This would be our technical partner.

As for floor space. Partnering with WeWork will allow us to house all the on-shore programmers and all other operating staff in the organization.

Financial

Investors:

We would like to mention our investors as they would be extremely helpful in guiding us with their experience as well as providing capital that will allow us to expand and complete the product for the launch date. In our view, our investors are extremely important resources.

Intellectual

Brand name:

Getting a patent on our name would be a top key resource. There would be no point in building a brand without having a patent. Someone could patent your brand name and all of your customers would be misled.

Human

Employees:
In order to complement our problem solving and bug fixing activities, we need programmers to do the work. These can be either off-shore or on-shore or if seen as an advantage, both.

We see having both on-shore and off-shore programmers as an advantage in the later phase of our business. Having both will be more cost-effective and allow us to cover a larger geographical area therefore work can be done around the clock. Accountants will be doing very important and essential work for us as we grow we need to manage our capital extremely well.

Key Costs
In the first couple of months, both our revenue and cost will be next to nothing. This is due to the bootstrapping we will be doing in order to keep the costs low.

Cost Structure by month:

Monthly expenses - 2020	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	YEARLY TOTAL
Salaries	-	-	-	€ 5,000.00	€ 5,000.00	€ 5,000.00	€ 5,000.00	€ 5,000.00	€ 5,000.00	€ 5,000.00	€ 5,000.00	€ 5,000.00	€ 45,000.00
Marketing	€ 500.00	€ 500.00	€ 500.00	€ 500.00	€ 500.00	€ 500.00	€ 500.00	€ 500.00	€ 500.00	€ 500.00	€ 500.00	€ 500.00	€ 6,000.00
Office Rent	-	-	-	€ 1,000.00	€ 1,000.00	€ 1,000.00	€ 1,000.00	€ 1,000.00	€ 1,000.00	€ 1,000.00	€ 1,000.00	€ 1,000.00	€ 9,000.00
Legal GDPR Consultants	€ 5,000.00	-	-	-	-	-	-	-	-	-	-	-	€ 5,000.00
Loan Repayments	-	-	-	-	-	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 9,787.05
Travel	-	-	€ 200.00	-	€ 200.00	-	€ 200.00	-	€ 200.00	-	€ 200.00	-	€ 1,000.00
Cloud Computing Expense	€ 500.00	€ 500.00	€ 500.00	€ 500.00	€ 500.00	€ 500.00	€ 500.00	€ 500.00	€ 500.00	€ 500.00	€ 1,500.00	€ 1,500.00	€ 8,000.00
Office Equipment	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 3,000.00
Misc	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 2,400.00
VAT(Sales Tax)	€ 230.00	€ 750.00	€ 750.00	€ 750.00	€ 750.00	€ 750.00	€ 750.00	€ 750.00	€ 750.00	€ 1,220.00	€ 1,220.00	€ 1,220.00	€ 9,890.00
Monthly Total	**€ 6,680.00**	**€ 2,200.00**	**€ 2,400.00**	**€ 8,200.00**	**€ 8,400.00**	**€ 9,598.15**	**€ 9,798.15**	**€ 9,598.15**	**€ 9,798.15**	**€ 10,068.15**	**€ 11,268.15**	**€ 11,068.15**	**€ 99,077.05**

However, as we start to develop our product into an operational service we will see how gradually our costs will rise.

One of the most prevalent costs to the company is paying salaries to newly recruited employees. Once we can not bear with the workload ourselves we will take on help in the form of a developer. By that time we will have the necessary capital to support the new employee. As the months go by closer to the date of launch we will definitely require more help both from a development standpoint and marketing & sales. Because we are a start-up with a limited amount of capital we need to pick the best employees that we can afford.

When growing the company and taking up more people to work on the product. Communication and collaboration is an extremely important factor in the success of the company. In order to promote this, we need to house the developers and other employees in a small office where they are close to each other and work in harmony. This cost would be a fixed cost on a monthly basis. The office space can be scalable depending on the landlord. If we require more office space for additional employees the rent would increase respectively.

As the product is nearing launch we need to ensure that there is a sufficient marketing campaign running. This will help the product to be more attractive to new customers wanting to change the way they operate their timesheets. A marketing and sales employee will have his own operating costs as well as the additional costs he will require for example paying GoogleAds.

In order to keep the product in a fit technical state, we need to outsource the processing power to a cloud provider. This will also allow our product to be cloud-based for easier accessibility. Having a scalable processing power plan will minimize our costs as we would only pay for what we use.

Some of the miscellaneous costs would correlate to the above such as increased employee count would require new equipment that can work on. Traveling expenses for management as we try to emerge the product on the market by attending conventions and meetings. Having a patent to ensure the legal safety of the product would be extremely important to obtain in the first few months after launch. Other costs would include monthly loan repayment and VAT payments.

Key Activities

There are a number of key activities we need to perform as an organization in order to deliver our product and make the business model work. The activities are as follows:

Customer Service and Maintenance is one of the top priorities for our organization. We believe if we cater and take care of our customers there is a greater chance of retention and free marketing by word of mouth. This is a very important philosophy that we need to stick to. This requires a very effective customer service strategy. The activity will allow us to solve any queries that the customer may have in a timely and professional manner. As mentioned above customer service streams can vary from social media to email/forum and call-centers. Mainly call centers will have the most penetration and best and fastest way of resolving customer issues.

Problem-solving goes hand-in-hand with customer service as different companies may want to use our system but require slightly amended features. Therefore having a problem-solving team will be swift to come up with solutions. This will require strong communication and efficiency within the team. Which in turn promotes a stronger relationship with current and potential customers.

Having talked about the 2 activities above it is important to mention the activity of bug fixing. Our problem-solving team would also focus on bug fixing and further development of the product. As the community grows unknown bugs will be spotted by our users, where they can notify us, and a ticket can be created and worked on swiftly. This also takes care of the customer care aspect of our organization.

Building new and strengthening current relations will definitely require a lot of work. This can be done parallel to having outstanding customer service. We are required to have exceptional communication skills with customers. Asking for feedback will be one of

the ways where we can connect with the customer and really listen to what they need and want. As well as showing appreciation for using our product and standing by us.

Lastly, Marketing. In order to reduce our costs, we will use free streams of marketing such as social media. Although Social media is a great platform to reach our potential customers we will also cover Google Ads to maximize reach. In order to attract new customers, our website will have to be sufficient enough to answer most questions they may have before contacting one of our representatives. The website will act as one of the main self-marketing streams

Channels

The channels our company will be operating through are through our own website, and as well as with Google Ads. Through these channels, we will be able to communicate with our customer segment and deliver our value proposition.

Google Ads will help lead potential customers back to our company website. This channel will not be the main form of reaching out to our clients, but to complement our company website, which will be our main channel. Google Ads are very expensive, therefore not much of our budget will be going towards Google Ads. But as the company and profit grow, we will be able to allocate more money towards Google Ads in the hope of attracting more customers.

The company website will be the main channel where we will communicate with our customer segments. It is our company website where we will raise the most awareness, have customers be able to evaluate PayDay, support the purchase of our product, and be able to provide support post-purchase.

Chosen pricing model

The pricing model for PayDay is as follows:

PayDay Pricing Model	Monthly	6 Months	Yearly
PayDay + 10 licenses	€ 15.00	€ 85.00	€ 165.00
5 Licenses	€ 10.00	€ 55.00	€ 105.00
10 Licenses	€ 20.00	€ 115.00	€ 125.00
15 Licenses	€ 30.00	€ 175.00	€ 345.00
20 Licenses	€ 40.00	€ 235.00	€ 465.00

We will sell PayDay along with 10 licenses for 15 euros a month. If you have 20 employees in your company, you would need to add an extra 10 licenses which are an extra 20 euros a month. Your monthly total would come out as 25 euros a month.

Since we are a startup company, we are offering deals to our first 20 customers. We will give customers 20% off their entire first order. This will attract our customers to opt for the yearly subscription as they would save the most from our offer. This will ease our financial pressure at the start as we are collecting yearly costs right off the bat while building our reputation at the same time.

We chose this pricing model taking into consideration the price our competitors offer, the functionalities of PayDay and what it offers to our customers, and how much money PayDay can save for our customers. We kept the prices of PayDay as cheap as we could while still being realistic and competitive. The prices above are cheaper than our 2 main competitors, Mitrefinch and Sage. having lower prices will help us compete with bigger companies that are already established.

Competition

We have 2 main competitors in our field. The two companies are Mitrefinch and Sage. Both companies offer digitized timesheets along with many other services but have put their own twist on their product. Mitrefinch caters to companies that don't have many office workers and are more specialized for companies that work out in the field such as engineers.

Mitrefinch was created in 1979. They developed their first attendance system in the 1980s, spread into America and Australia in the 1990s, spread to Canada, New Zealand in the 2000s, and acquired a US-based partner, Advanced Systems America in 2018. They are an internationally recognized company with roots in many countries.

They are considered one of our main competitors as one of the many services they offer is a payroll system. However, their payroll system is quite unique. It includes a biometric finger scanner to clock employees in and out. This supports my statement in which Mitrefinch is geared towards companies that have employees in the field such as engineering companies. Having a biometric finger scanner is attractive for owners of a company as it will accurately track the clock in and out of employees and will ensure that it is themselves that are clocking in instead of having their friends clock in for them. However, this will deter some employees because of the Facebook Cambridge Analytica scandal, the average person has become more aware of their data and data privacy. There will be some employees that will refuse to take part in using their fingerprint to clock in and out.

We are sure this will happen as one of us worked for a company that had the Mitrefinch Payroll system. During the time spent in the company, there were many incidents where employees refused to scan their finger on the biometric scanner. This caused problems as jobs had to be delayed until they agreed to scan their fingers. In some cases, engineers had to be replaced as they refused to scan their fingers and stood by it.

Sage is a company that is very similar to PayDay. One of the many services they offer is payroll software that streamlines and automates payroll processes like payslips and tax calculations. They deal with all three types of businesses, small, medium, and large. In terms of competition, Sage would be our biggest competitor. They offer 2 types of payroll software, "Sage Business Cloud" for companies with 1-25 employees and "Sage Payroll" for companies with 5-500 employees.

Advantage over competitors

The main advantage we have over Mitrefinch is the efficiency of which our customers can get through the entire payroll process. Our product will save time and reduce stress

employers and their employees will have with the payroll process. Our product will only need the minimum requirements from the employee to complete the payroll process to maximize time saved and reduce the stress of the employees who have to carry out the payroll process.

With Mitrefinch, employees are required to scan their fingerprint to clock in and clock out of work. Although this produces accurate time input and payment of timesheets, some employees will have a problem with having to scan their finger on the scanner. Some employees will see it as intrusive and unnecessary and will kick up a fuss about having to scan their fingerprint. This, in turn, will delay jobs, in extreme cases, some employees might be replaced as it is a necessary requirement for the payroll process, and create distrust and may ensue conflict between the employee and employer.

Mitrefinch is also suited towards construction companies, engineering companies, etc. who have employees that don't work in an office. The payroll system could still be used in an office environment, but it is a counterproductive use of it.

This is where our product PayDay shows its advantages. PayDay is a simple and easy to use Payroll system that will speed up the payroll process. It is a general payroll system that can be used by office workers and engineering/construction workers. Employees will only need to input the amount of time worked for that day and input the job they were on. Minimizing the amount of fields employees are required to input will minimize the amount of time spent on the payroll process while minimizing the stress that might be caused by the payroll process. PayDay is also non-intrusive. We don't need your fingerprint to clock you in and out.

Three Year Financial Projection

3 Year Financial Projection	2020		2021		2022		2023
Income	€ 60,000.00	*133%*	€ 140,000.00	*43%*	€ 200,000.00	*60%*	€ 320,000.00
Expenses	€ 99,077.00	*54%*	€ 152,317.00	*15%*	€ 174,817.00	*14%*	€ 198,817.00
Profit	-€ **39,077.00**		-€ **12,317.00**		€ **25,183.00**		€ **121,183.00**

Our 3-year financial projection is shown in the above image. 2020 is when we will begin our startup company. In our first year, we expect our income to be around 60000 and our expenses to be around 100000. This is as expected as very few companies are able to make a profit in their first year. In 2020 we expect to be losing around 40000 euro

In 2021, it is where we expect to make the most customers. Due to the good feedback from customers and extensive marketing done in 2020, we expect our income to double that of our previous year. Although we have more than doubled the profit from the previous year we will still be in a deficit of around 10000 euros.

In the year 2022, is where the rate of attaining customers will drop off. It is at this point where we will have loyal customers continuously subscribing to PayDay, and marketing of PayDay will be lessened. It is at this point where we expect to be well known by companies in Dublin and our good reputation will be able to speak for itself. Due to the good reputation already gained in Dublin, our influence will spread to other counties in Ireland. This is the

year where PayDay will start making a profit. In the year 2022, we expect to make a profit of 25000 euros.

Evidence of primary and secondary research to validate the proposed offering's suitability for the market

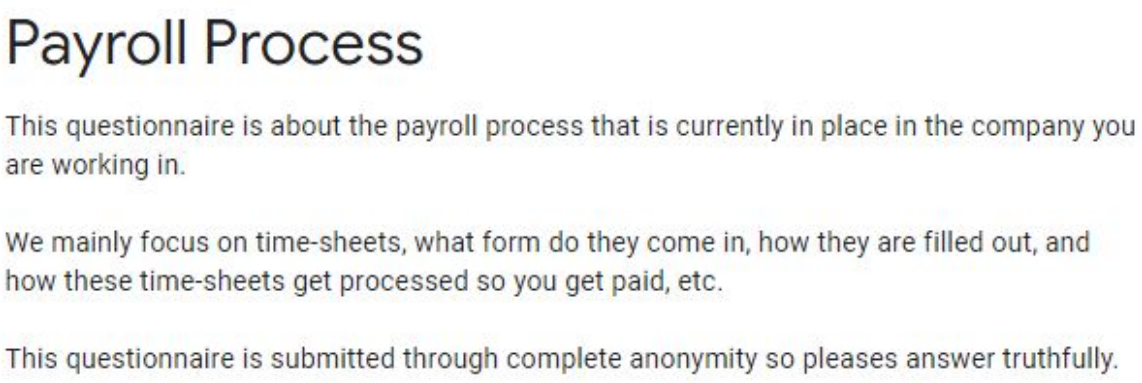
Primary Research

For primary research, we were limited to what we could do because of the Covid-19 pandemic. We were limited to creating a survey on Google docs and having to rely on friends and family to fill them out and as well as interview close friends and family members. This was done with the use of social media such as Facebook, Instagram, and also LinkedIn. We created posts on these social media platforms in the hopes of getting as many individuals as we could to fill out our survey.

As a result, our sample size was not as big as we would have liked, only having 38 individuals fill out the survey. We would have liked to interview employees as well as employers to see first hand what they thought of PayDay. We had planned on going back to our Intra placements and conducting interviews as well as hand out surveys.

Our survey was short with only seven questions. We decided to keep it as short as possible as there was more chance of participants filling out the survey if it took less than a minute to fill out. Although we had a smaller sample size than we first originally started, having 36 participants filling out the survey is not a bad amount.

At the start of the survey, we explained what the survey was about. We also explained that each survey is submitted through complete anonymity to preserve the innocence of the individual filling out the survey.


Payroll Process

This questionnaire is about the payroll process that is currently in place in the company you are working in.

We mainly focus on time-sheets, what form do they come in, how they are filled out, and how these time-sheets get processed so you get paid, etc.

This questionnaire is submitted through complete anonymity so pleases answer truthfully.

We had a total of seven questions on the survey. Six were multiple-choice questions while one was text-based. We kept the questions as simple and as clear as we could so that participants who filled out the survey could easily understand the question. The questions in the survey are as follows:

1. What form do the timesheets in your company come in?
2. How often do you submit your timesheet?

3. How long does it take for you to fill out the timesheet given to you by your company?
4. Do you understand your company's payroll process, i.e. what happens after you have submitted your timesheet to getting paid?
5. Do you know what a digitized timesheet is?
6. Are you happy with the format of the timesheets that your company has?
7. Would you want to change how your company handles timesheets? If yes then pleases specify how.

From the results of the survey, there is a clear indication that digitized timesheets are very scarcely used with only 13.2% of the participants stating that their company's timesheets are digitized. This is surprising as we expected results to be low, but not as low as 13.2%. There are many factors which could have affected this result, such as having too low of sample size, or that most of the people we have on our friends list on our social media platform work in construction, etc. With 13.2% having digitized timesheets only supports our view that there is a market for PayDay, as very few companies have digitized timesheets.

For question 6 "Are you happy with the format of the timesheets that your company has?", 65.8% of the participants answered "No". This shows that there is massive discontent with employees in regard to their company's timesheets. With this information, we are hoping to exploit that discontent and introduce our product PayDay.

Question 7, was an option question which participants could fill out if they wished. The question was "Would you want to change how your company handles timesheets? If yes then pleases specify how". Out of 38 individuals who completed the survey, we had a total of 9 responses. The responses consisted of making timesheets more efficient, more accessible, more organized, making them easier to fill out, and 5 of the responses explicitly mentioning wanting digitized timesheets to be incorporated into the company.

Out of 38 responses 9 especially wanted a change in the way their company handles their timesheets. Out of those 9 responses, 5 wanted digitized timesheets to be incorporated into their company. This shows that there is a small population of people that know what digitized timesheets are and are expressing their need for it. This further validates that there is a market for PayDay. Over 50% of the individuals who freely expressed that they want their company's timesheets to change, wanted digitized timesheets.

Another statistic which further validates our market is question 2 and 3. 31.6% has stated that they submit monthly timesheets and 31.6% stating that it takes them more than 20 mins to fill out the timesheet. So at the minimum, employees spend over 240 mins a year on just filling out their timesheets. That is precious time they could spend on other matters. Through testing, it takes less than 15 seconds a day to submit their daily timesheet. Assuming an employee works 5 days a week, employees would only spend 60 mins a year when using PayDay. There is a massive difference between a company that has PayDay and a company that does have PayDay.

Secondary Research

The main basis of our secondary research was on the number of SMEs in Ireland, and the percentage of SMEs in each county. We also researched on how many potential competitors we may have and their similarities as well as differences.

According to the CSO (Central Statistics Office)[1], in 2016 there were 250033 enterprises in Ireland. Out of the 250033 enterprises, 99.8% of them were small to medium enterprises. CSO has labeled SMEs as enterprises with 250 employees and under.

The enterprises were broken up into the following sectors. Services, which provide services, rather than producing material commodities (e.g. computer services, communications, electricity, water, and gas supply) accounted for 51.1%, Construction accounted for 20.6%, Financial Service accounted for 2.6%, distribution sector accounted for 18.7%, and Industry accounted for 7%. The sectors that would benefit the most from PayDay are the Services and Construction sectors. Evidently, it is those 2 sectors that make up the majority of enterprises in Ireland (71.7%/179273 construction and services sector). There is no shortage of our target market in Ireland.

Financial Requirements

Financial reuirements for completion	2020		2021		2022		2023
Income	€ 60,000.00	*100%*	€ 120,000.00	*67%*	€ 200,000.00	*60%*	€ 320,000.00
Expenses	€ 99,077.00	*54%*	€ 152,317.00	*15%*	€ 174,817.00	*14%*	€ 198,817.00
Profit	-€ **39,077.00**		-€ **32,317.00**		€ **25,183.00**		€ **121,183.00**

For our idea to be complete. It includes a four-year plan in which we would be able to create a well established and well-known company, not just in Dublin but all of Ireland. In this 4 year span, we estimate to spend around 600,000 euros in order to fully complete our idea. The requirements we consider for our idea to be complete are:

1. Have around 150 customers not just in Dublin, but in all of Ireland
2. Making a profit when all the income and expenses have been calculated
3. Pay off 50% or more of our loans.
4. Find passionate investors, who will help grow the company

We believe this is achievable in such a short timespan because there is such a large market in Ireland, we have very little to no competition, we are an Irish based company, with each generation wanting to become more digital, it is only a matter of time before digital timesheets become a standard in every company, and just like our target customers we will also be an SME, therefore would be able to understand their pains and requirements better.

2020 is when we will start our company. For the year 2020, we will have our expenses estimated at around 100000 euros. The breakdown of how we got to that figure will be in the figure below. We will look for a small office space for ourselves and employees. At the start of the year our expenses will be relatively low. The main expense we will have is a GDPR consultant. This is to ensure our product PayDay, meets all of the GDPR requirements. By April, we plan to hire 3 employees with a salary of 1600 euros and also move into our office. By June we will start paying off our loans. These loans were taken out in order to start our company. Our cloud computing expense will below for our first year as we won't have that many customers. In our first year is where we will focus heavily on marketing using

GoogleAds, billboards, and going to conventions to market our product. Finding investors will be key to making sure we don't lose too much in our first year.

Monthly expenses - 2020	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	YEARLY TOTAL
Salaries	-	-	-	€ 5,000.00	€ 5,000.00	€ 5,000.00	€ 5,000.00	€ 5,000.00	€ 5,000.00	€ 5,000.00	€ 5,000.00	€ 5,000.00	€ 45,000.00
Marketing	€ 500.00	€ 500.00	€ 500.00	€ 500.00	€ 500.00	€ 500.00	€ 500.00	€ 500.00	€ 500.00	€ 500.00	€ 500.00	€ 500.00	€ 6,000.00
Office Rent	-	-	-	€ 1,000.00	€ 1,000.00	€ 1,000.00	€ 1,000.00	€ 1,000.00	€ 1,000.00	€ 1,000.00	€ 1,000.00	€ 1,000.00	€ 9,000.00
Legal GDPR Consultants	€ 5,000.00	-	-	-	-	-	-	-	-	-	-	-	€ 5,000.00
Loan Repayments	-	-	-	-	-	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 9,787.05
Travel	-	-	€ 200.00	-	€ 200.00	-	€ 200.00	-	€ 200.00	-	€ 200.00	-	€ 1,000.00
Cloud Computing Expense	€ 500.00	€ 500.00	€ 500.00	€ 500.00	€ 500.00	€ 500.00	€ 500.00	€ 500.00	€ 500.00	€ 500.00	€ 1,500.00	€ 1,500.00	€ 8,000.00
Office Equipment	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 3,000.00
Misc	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 2,400.00
VAT(Sales Tax)	€ 230.00	€ 750.00	€ 750.00	€ 750.00	€ 750.00	€ 750.00	€ 750.00	€ 750.00	€ 750.00	€ 1,220.00	€ 1,220.00	€ 1,220.00	€ 9,890.00
Monthly Total	€ 6,680.00	€ 2,200.00	€ 2,400.00	€ 8,200.00	€ 8,400.00	€ 9,598.15	€ 9,798.15	€ 9,598.15	€ 9,798.15	€ 10,068.15	€ 11,268.15	€ 11,068.15	€ 99,077.05

It is 2021 where we expect PayDay to take off. We expect to double our income in 2021 due to the extensive marketing, finding investors, and the reputation and the influence of those investors. We expect to have an income of 120000 euro but our expenses are calculated at around 150000. We will still be losing money but the percentage increase in our income is double that of the year 2020. This shows that there is a large market that could be exploited. This will attract more investors. Having more customers also comes with more recognition PayDay will have in the industry.

Monthly expenses - 2021	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	YEARLY TOTAL
Salaries	€ 5,000.00	€ 5,000.00	€ 5,000.00	€ 5,000.00	€ 5,000.00	€ 5,000.00	€ 8,000.00	€ 8,000.00	€ 8,000.00	€ 8,000.00	€ 8,000.00	€ 8,000.00	€ 78,000.00
Marketing	-	-	-	-	-	-	€ 500.00	-	€ 500.00	-	€ 500.00	-	€ 1,500.00
Office Rent	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 18,000.00
Loan Repayments	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 16,777.80
Cloud Computing Expense	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 18,000.00
Office Equipment	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 3,000.00
Misc	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 2,400.00
VAT(Sales Tax)	€ 1,220.00	€ 1,220.00	€ 1,220.00	€ 1,220.00	€ 1,220.00	€ 1,220.00	€ 1,220.00	€ 1,220.00	€ 1,220.00	€ 1,220.00	€ 1,220.00	€ 1,220.00	€ 14,640.00
Monthly Total	€ 11,068.15	€ 11,068.15	€ 11,068.15	€ 11,068.15	€ 11,068.15	€ 11,068.15	€ 14,568.15	€ 14,068.15	€ 14,568.15	€ 14,068.15	€ 14,568.15	€ 14,068.15	€ 152,317.80

In 2022, we expect to finally make a profit. Our income will be at 2 around 200000 euro which is a 67% increase in our profits in the previous year. Our expenses will be at around 174000 euros. The profits we estimate we will attain in 2022 is around 25000 euro. It is in this year we start to branch out to the rest of the country. We will put the main emphasis on SMEs in Cork as they have the second largest population in Ireland and would have the second most SMEs.

Monthly expenses - 2022	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	YEARLY TOTAL
Salaries	€ 8,000.00	€ 8,000.00	€ 8,000.00	€ 8,000.00	€ 8,000.00	€ 8,000.00	€ 8,000.00	€ 8,000.00	€ 8,000.00	€ 8,000.00	€ 8,000.00	€ 8,000.00	€ 96,000.00
Office Rent	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 18,000.00
Loan Repayments	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 16,777.80
Cloud Computing Expense	€ 2,000.00	€ 2,000.00	€ 2,000.00	€ 2,000.00	€ 2,000.00	€ 2,000.00	€ 2,000.00	€ 2,000.00	€ 2,000.00	€ 2,000.00	€ 2,000.00	€ 2,000.00	€ 24,000.00
Office Equipment	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 3,000.00
Misc	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 2,400.00
VAT(Sales Tax)	€ 1,220.00	€ 1,220.00	€ 1,220.00	€ 1,220.00	€ 1,220.00	€ 1,220.00	€ 1,220.00	€ 1,220.00	€ 1,220.00	€ 1,220.00	€ 1,220.00	€ 1,220.00	€ 14,640.00
Monthly Total	€ 14,568.15	€ 14,568.15	€ 14,568.15	€ 14,568.15	€ 14,568.15	€ 14,568.15	€ 14,568.15	€ 14,568.15	€ 14,568.15	€ 14,568.15	€ 14,568.15	€ 14,568.15	€ 174,817.80

In the year 2023, we will have completed our 4-year plan and have met our requirements to consider our idea complete. In the year 202, we expect to make a profit of around 120000 euro. Our income is estimated at around 320000 euro and our expenses are estimated to be around 121183. It is in this year we expect to have 150 or more customers all over Ireland, passionate investors who believe in our product, already making a sizable profit, and have paid off more than 50% of our initial loan. This is the year where we considered our initial idea completed. Once we have established ourselves in Ireland, we are hoping to branch out into other countries starting with England.

Monthly expenses - 2023	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	YEARLY TOTAL
Salaries	€ 10,000.00	€ 10,000.00	€ 10,000.00	€ 10,000.00	€ 10,000.00	€ 10,000.00	€ 10,000.00	€ 10,000.00	€ 10,000.00	€ 10,000.00	€ 10,000.00	€ 10,000.00	€ 120,000.00
Office Rent	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 1,500.00	€ 18,000.00
Loan Repayments	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 1,398.15	€ 16,777.80
Cloud Computing Expense	€ 2,000.00	€ 2,000.00	€ 2,000.00	€ 2,000.00	€ 2,000.00	€ 2,000.00	€ 2,000.00	€ 2,000.00	€ 2,000.00	€ 2,000.00	€ 2,000.00	€ 2,000.00	€ 24,000.00
Office Equipment	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 250.00	€ 3,000.00
Misc	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 200.00	€ 2,400.00
VAT(Sales Tax)	€ 1,220.00	€ 1,220.00	€ 1,220.00	€ 1,220.00	€ 1,220.00	€ 1,220.00	€ 1,220.00	€ 1,220.00	€ 1,220.00	€ 1,220.00	€ 1,220.00	€ 1,220.00	€ 14,640.00
Monthly Total	€ 16,568.15	€ 16,568.15	€ 16,568.15	€ 16,568.15	€ 16,568.15	€ 16,568.15	€ 16,568.15	€ 16,568.15	€ 16,568.15	€ 16,568.15	€ 16,568.15	€ 16,568.15	€ 198,817.80

Technical Delivery

Summary Functional Specification & Technical Description

General Description

1. Product/System function

User Processes

Log in

Employees input their login email, password and Company ID.

Registering

The customer goes to PayDay website and registers as a company. The customer then chooses which subscription he/she may need. The customer then pays for the subscription and a company code is created. Company code will be used as a key for another employee registration**.**

Creating user profiles.

The user clicks on the register button, inputs their credentials such as email, password and the Company ID that was given to them by their manager.

Updating timesheets.

Here a user inputs their hours worked for each day of the week in the timesheet section and clicks save. Below the employee can choose the Next week when they input their time the previous hours will be saved.

Adding a Job and the rate.

Here a manager would input the Role/Job for the employees and the corresponding rate. The employees can then select the role when filling out timesheets.

System Processes

Calculation of timesheets.

Here is where the employees have filled out the timesheet each day for the month we will then take the total hours worked and the rate of the jobs they have worked on and calculate the total wage for an employee before tax.

Database relations

Registered users will save the timesheets which will be sent to the database. The timesheets are organized in the database by the employee_ID/Username. When the manager goes to approve timesheets, the data will be pulled from the database.

Web app accessibility

From the start of our project development accessibility has been the key objective for us. We are committed to creating a web-app that is accessible both in UX and UI concepts.

2. User Characteristics and Objectives

Our product is a web app. This means it can be accessed by smartphones, laptops, tablets, etc. that have internet access and a web browser. In order to ensure that our website is actually accessible and scalable on different devices we have utilised bootstrap 4 within our design.

Our product is aimed towards SME owners that want to increase efficiency in their company, want to save time and money, want to make the wages process easier for their employees, want to pay their employees correctly and on time, and want to make the process easier for those who take part in the payment of wages process.

Our product has been designed in the simplest way possible so employees who may not be technologically inclined will be able to do what they need to do without any problems (input their working times, check roster, check weekly tasks, etc.). For the main function, timesheets, it has been designed using a calendar format with users being able to input their time under the days they have worked.

3. Operational Scenarios

Before our customers can use our systems, they must first register their company and choose a subscription they want to avail of. This can all be done through our website.

The owner of the company registers their company, then an employee of the company creates a user profile using the company ID (product key) we will provide them once

payment has been authorized. An employee will create their user profile and in their first-time logging into their profile they must choose which manager they are being supervised by. Once this has been done, an employee will have created a user profile fully and successfully.

4. Constraints

Time/Covid-19

Time will be the biggest constraint for the project. We have to meet the deadline of the project set out by DCU for the end of April 2020. This has been extended to 17th of May due to the International Pandemic. Although it is a known fact, we would like to also highlight that the Pandemic has made it the project much harder to work on.

Django

Not having sufficient previous experience with Django will be a challenge when developing this web app.

Pandas

Creating a database for this project will require the use of pandas to fetch the data from the database. This will be a challenge as we never used this before.

Coding Experience

Coding experience and skills have diminished during the years due to the course structure.

Functional requirements

PayDay web app would consist of a handful of very important functions. Functions may change depending on who is the end-user of the app. When we take the functionality of daily timesheets. On one hand, the end-user as an employee would have to be able to input the total hours on a certain day they worked. They are then required to submit the worked days to their manager. This can be done weekly or monthly depending on their company's policy. The functionality of the daily timesheets when it comes to the end-user as a manager changes. The manager has to see all the employee's times and be able to approve or veto the times. The manager would pre-create jobs and assign a rate to each job. PayDay will be capable of also counting up the wages by the end of the month by multiplying the rate and hours worked for each employee. This will be the before-tax wages.

PayDay can also be used for rostering. As PayDay is a versatile web app, this can come in handy in many industries. Rostering can be used by the manager to roster his/her employees for certain days. Employees are able to see the roster page as well as apply for a day swap. A notification is then sent to the manager to either approve or decline the day swap request.

Below mentioned are the functions that are the building blocks of PayDay spanning from simple register, Log in functions to a more complex such as database connectivity and updating of timesheets.

1. Registering

Description:

A customer must first choose which subscription (pay either monthly, every 6 months or yearly) they want to opt for. A standard subscription would be to buy 20 licenses for a fixed price, then buy more licenses as the company grows. After a subscription has been chosen they must then register their company. In order to register a company, we will need information about the company. We will need the company name, address, how many managers are in the company, and person of contact (phone number, work email address, etc.). A company ID and a manager company ID will be sent out to the person of contact. This company ID can be used as a key to register employees and also for employees to log into their profile once they have finished registering. The process is the same for a manager company ID.

Criticality:

This function is critical as companies are unable to use our product without registering their company.

Technical issues:

The registration form is created in Django “forms.py” file. An issue that could arise is that the form is not compatible with different types of technologies that could be used, smartphones, and tablets, etc.

Dependencies:

This function is not dependent on any other requirement

2. Log in

Description:

A customer will enter our URL into their chosen browser. It will bring the customer into our product login page. Here, the customer would need to input their company ID, Employee ID, and Password to log into their profile.

Criticality:

A user is required to log in with the correct credentials to use PayDay.

Technical issues:

The system should look up all the usernames and be able to match the password that the user inputs. This is done for security purposes.

Dependencies:

This is dependent on the user registering for PayDay.

3. Creating a User Profile

Description:

For an employee to create their profile, they must click on “Register Employee”. They will then be prompted to enter the company ID after they have entered the company ID, and if the company still has licenses that are not in use, they will be sent to a registering page. Here, they will be asked to input their name, create an employee ID, and Password.

Criticality:

This is an important function as new users need to create a profile so the system knows who's who.

Technical issues:

Distinguishing managers and ordinary employees. A key should be attached to the manager profile.

Dependencies:

Creating a profile is dependent on the owner’s purchasing licenses for the company.

4. Updating Timesheets

Description:

This function allows the users to update the hours on a certain day on their timesheets. They can then save it for later or choose to submit to the manager.

Criticality:

They are required to update and ultimately submit timesheets to the manager so the finance department can then process their wages.

Technical issues:

Using a database in the correct manner.

Dependencies:

Function is dependent on the user tracking his/her times on the timesheet.

5. Calculation of timesheets

Description:

The finance department should see how many hours the employee worked and what hours they did at which specific job. A calculation is then made of the total wages before tax.

Criticality:

This function is part of the timesheeting function. It's essential to know how much an employee is getting paid before tax.

Technical issues:

Improper calculation of different jobs and their rates.

Dependencies:

On the user filling out the timesheet in a correct manner.

6. Database relations

Description:

PayDay users will have their information stored in a database. The user profile will be stored in the database. When they interact with the web app data will be collected and stored such as timesheet hours. Managers will be able to see the times of the employee by pulling the information from a database.

Criticality:

In order to have a properly functioning web app, we need the information to be pulled from a database in a reliable and accurate manner.

Technical issues:

May have some unforeseen issues. This may require more testing. If the product were to go on the market a more rigorous testing procedure would need to be implemented.

Dependencies:

We need a way to interact with the database to pull information.

7. Web app accessibility

Description:

PayDay is designed to be used by people who are not technically sound. While designing the web app we have to constantly be thinking about the user first.

Criticality:

If the web-app is not accessible by our target audience we will lose out on sales. If issues arise later on we will receive a large amount of customer service calls.

Technical issues:

Creating a 100% accessible site is quite difficult and some aspects may be left out. More testing of systems and UI would be much helpful in order to identify if it is fully accessible.

Dependencies:

The Web-app has to comply with basic accessibility rules.

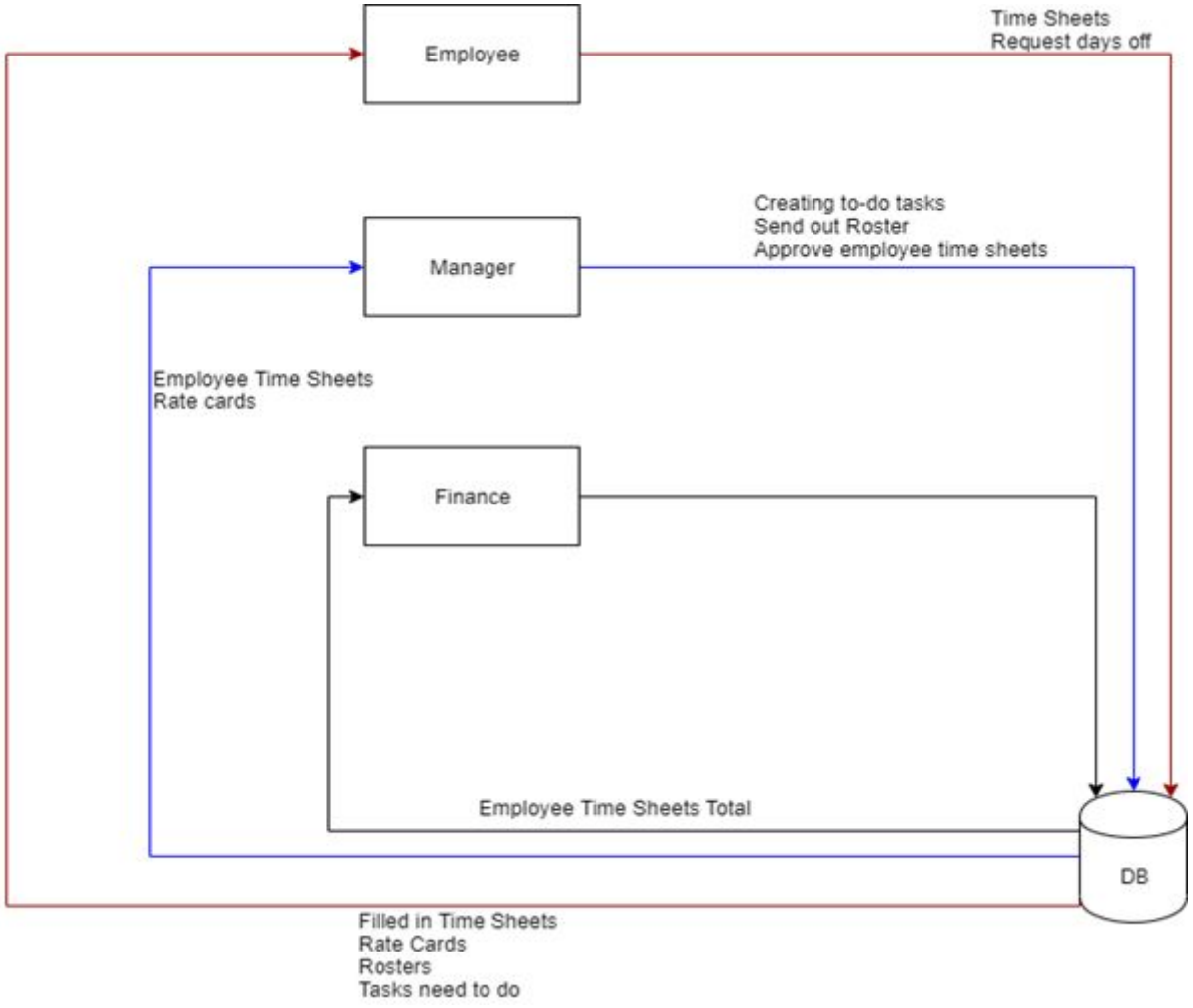
Software Architecture of the proposed solution.

PayDay is a cloud-based web app and is planned to be hosted on the cloud such as Heroku. Heroku supports python apps which is what we will be using when developing this app. To be more specific we will be using Django web framework to develop PayDay. Django will be our strong foundation that we can build on. We will create apps within Django to facilitate different functions of PayDay. In order to hold all the user data, we need a database. For the database side specification, we will be using the built in SQLite. In order to have it more appealing to the eye, we have utilised Bootstrap 4 for a more accessible user experience. We will consider implementing some React.js in order to make it more interactive. React can be also used to build an appealing interface. These will be an essential aspect to tackle in order to release the product into the market. Although as for the

prototype this will only be implemented if time allows. No big plans for React currently as it is important for us to build the functions and the UI prototype first.

The Diagram below shows how our 3 different users will be interacting with the system. Following the dataflow, we can clearly see how the system works when users are interacting with it. As users interact with the system, all the data is being pulled from the database and also updated in the database.

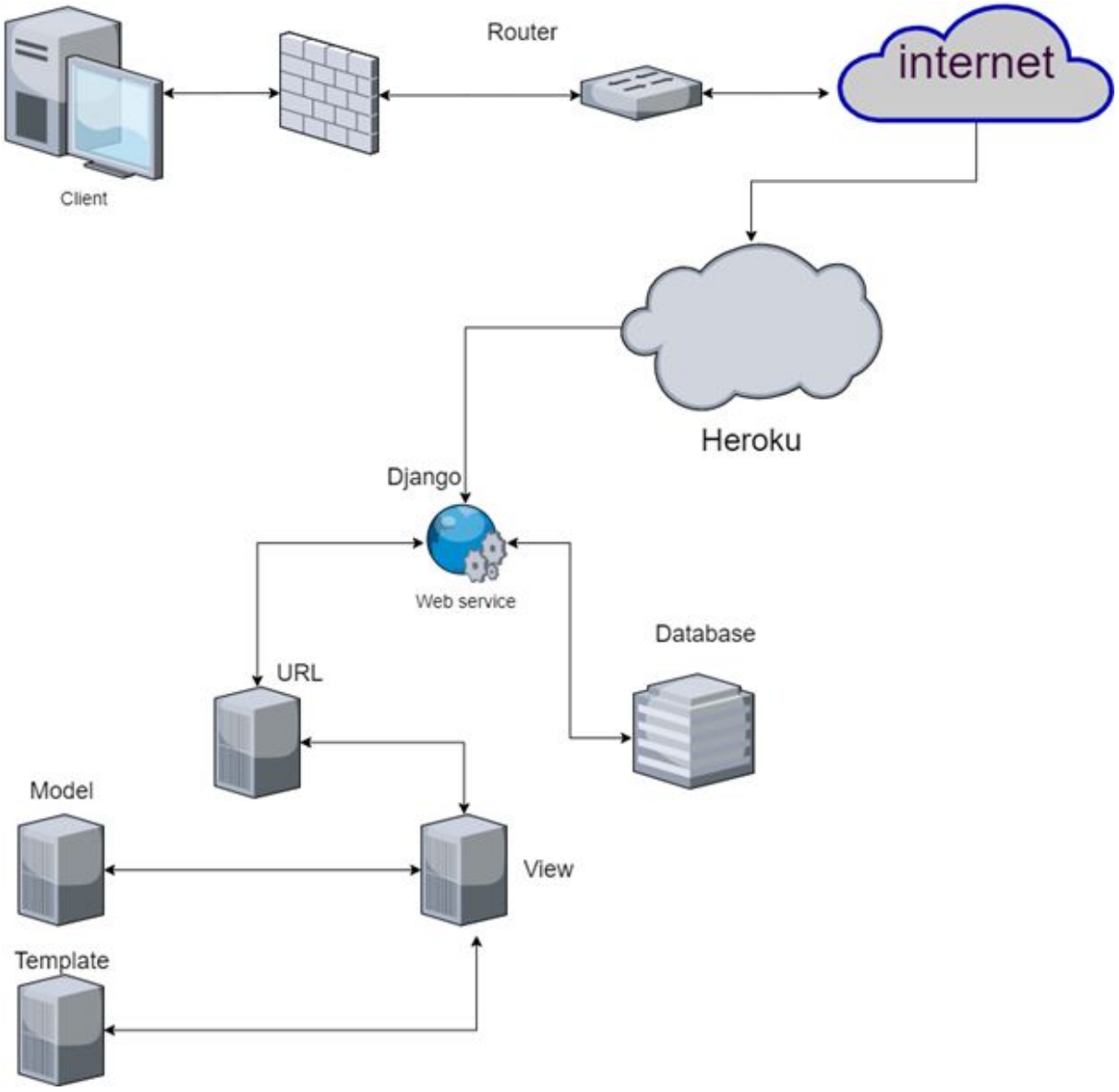
User Interaction Flow.



Digging deeper, looking at the diagram below we can see how PayDay will essentially work. Django uses the Model, View, Template approach. We can access PayDay through a cloud provider. An example is Heroku. We will work on the UI in the template and utilise bootstrap there. For the prototype we have developed the system with two UI's. At first we have used our own designs for the product and then we have used bootstrap to make it more appealing

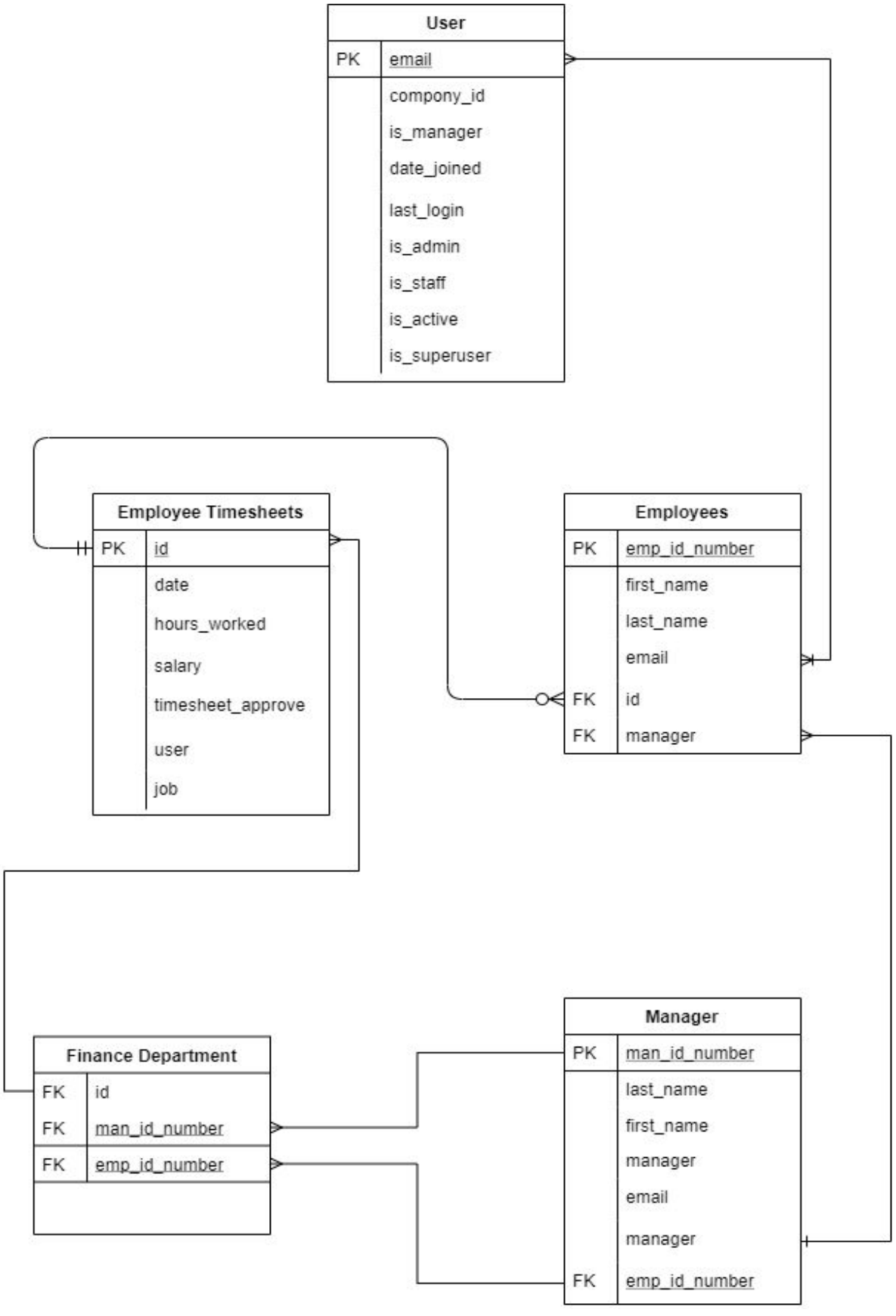
for the prototype demonstration. Static CSS files have been called into HTML templates. Django itself will be interacting directly with the DB to pull and update user information.

Django/PayDay Architecture



Django Models are where you built up the information about your data. Models are essential when creating a database and they contain crucial information about different fields and their behaviours of the data that will be stored. For an easier view we have created a logical database design below. It demonstrates how all the tables are tied together. Essentially an employee has one manager. We are required to make a user table as all users created are users and then divided into employees or managers. The employee timesheets are tied with the timesheet ID. The finance department has both foreign keys of the manager and employee. They can then look up the timesheet once it is sent by the manager by the ID foreign key.

Logical Database Design



Models

In our Model.py file we can see below that these are how the Manager and Employee tables were created. Both are identified with an ID which is their primary key. Manager has a field “manager” which is set as true. Meaning once a user registers as a manager they can now be set as a manager by the admin which gives them special privileges. We will talk about creating and assigning manager privileges later on this document.

```
class Manager(models.Model):
    user = models.ForeignKey(User, on_delete=models.CASCADE, null=False)

    man_id_number   = models.CharField(primary_key=True, max_length=4, unique= True)
    first_name      = models.CharField(max_length=20)
    last_name       = models.CharField(max_length=20)
    manager         = models.BooleanField(default=True)


    objects = MyUserManager()


    def __str__(self):
        return self.man_id_number



class Employee(models.Model):
    user = models.OneToOneField(User, on_delete=models.CASCADE)

    emp_id_number   = models.CharField(primary_key=True, max_length=4, unique= True)
    first_name      = models.CharField(max_length=20)
    last_name       = models.CharField(max_length=20)


    objects = MyUserManager()




    manager       = models.ForeignKey(Manager, default='choose manager')

    def __str__(self):
        return self.emp_id_number
```

Django utilises the MVT model to output HTML pages for us to view. “Views.py” file is used to return a web response. This response outputs a HTML file, if the HTML file is not configured properly or not created the view will redirect to a Error 404 view.

REST Framework

We have used REST in the development of PayDay. REST is a framework that has a powerful and flexible toolkit for building web API. Installation of REST is very simple and requires running “pip install djangorestframework” in the console and adding the “rest_framework” into the installed apps category in Django settings. One of the areas where you can see the framework being used is in the database. Below is the “serializers.py” file with all the serializer declarations. These would allow complex data to be converted to python data types which can be rendered as JSON. We utilise searlizers once the employee logs in into their homepage and clicks “Timesheet”, “Profile” or “Job Done”. These can be then filled in and stored in the database. We talk about the employee homepage later in this

document.

```
from rest_framework import serializers
from rest_framework.fields import CurrentUserDefault
from .models import Timesheet, Manager, Job, Job_complete, Employee

class TimesheetSerializer(serializers.ModelSerializer):
    user = serializers.HiddenField(default=serializers.CurrentUserDefault())

    class Meta:
        model = Timesheet
        fields = (
            'date',
            'hours_worked',
            'job',
            'user',
                )


class EmployeeSerializer(serializers.ModelSerializer):
    user = serializers.HiddenField(default=serializers.CurrentUserDefault())

    class Meta:
        model = Employee
        fields = ('user',
            'emp_id_number',
            'first_name',
            'last_name',
            'manager')


class ManagerSerializer(serializers.ModelSerializer):
    user = serializers.HiddenField(default=serializers.CurrentUserDefault())
    class Meta:
        model = Manager
        fields = ('user',
            'man_id_number',
            'first_name',
            'last_name',
            )
```

URLS

The urls.py file houses all the urlpatterns. Once a request is made by the user Django looks at the corresponding view in the url.py file which then returns a HTML response. We can see our “urls.py” file below.

```
urlpatterns = [
    url('', include(router.urls)),
    url(r'^paydayhome', views.paydayhome_view, name='paydayhome'),
    url(r'^home', views.home_screen_view, name='home'),
    url(r'^managerhome', views.manager_home_screen_view, name='managerhome'),
    url(r'^empregister$', views.employeeregistration_view, name='register'),
    url(r'^manregister$', views.managerregistration_view, name='manregister'),
    url(r'^logout$', views.logout_view, name='logout'),
    url(r'^login$', views.login_view, name='login'),
    url(r'^manlogin$', views.manlogin_view, name='manlogin'),
    url(r'^emp_timesheet_history$', views.emp_timesheet_history_view, name='emp_timesheet_history'),
    url(r'^man_timesheet_history$', views.man_timesheet_history_view, name='man_timesheet_history'),
    url(r'getjobs', views.get_jobs, name='get_jobs'),
    url(r'add_job', views.add_job, name='add_job'),
    url(r'^contact.html$', views.contact, name='contact'),

]
```

Below is a function in a view file which outputs the manager registration onto the HTML file.

Views

```
def managerregistration_view(request):
    context = {}
    if request.POST:
        form = ManagerRegistrationForm(request.POST)
        if form.is_valid():
            form.save()
            email = form.cleaned_data.get('email')  # How to get data from a valid form
            raw_password = form.cleaned_data.get('password1')
            manager = authenticate(email=email, password=raw_password)  # how to create the account
            login(request, manager)
            return redirect('managerhome.html')
        else:
            context['managerregistration_form'] = form
    else:  # GET request
        form = ManagerRegistrationForm()
        context['managerregistration_form'] = form
        return render(request, 'managerregistration.html', context)
```

The view calls the manager registration form from the forms.py file which houses all the forms used in the PayDay app. We can see the manager registration form below which has all the relative fields needed to make the registration possible. As this is a little different to the normal creation of form in HTML this was harder to style. We had to find a way to give the form a class which we can then call and style in the CSS files. In this case we have given both the manager registration and the employee registration the same class “form_control” as they are identical in design and content.

Forms

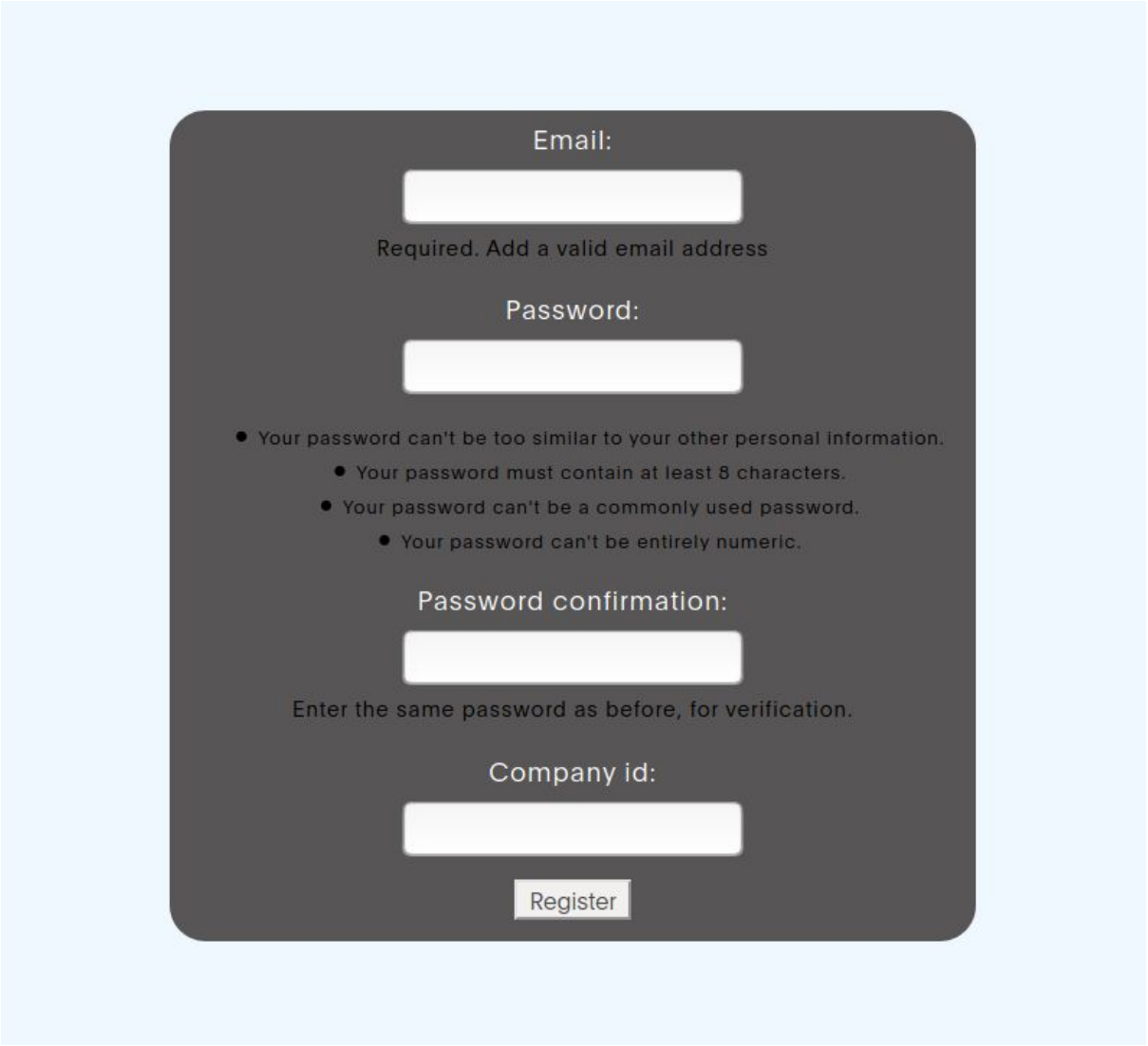
```
22  class ManagerRegistrationForm(UserCreationForm):
23      email = forms.EmailField(max_length=60, help_text='Required. Add a valid email address',widget=forms.TextInput(
24
25          attrs = { 'class': 'form_control'}
26  ))
27
28      class Meta:
29          model = User
30          fields = ("email", "password1", "password2", "company_id")
31
32      def __init__(self, *args, **kwargs):
33          super(ManagerRegistrationForm,self).__init__(*args, **kwargs)
34          self.fields['password1'].widget.attrs.update({'class' : 'form_control'})
35          self.fields['password2'].widget.attrs.update({'class' : 'form_control'})
36          self.fields['company_id'].widget.attrs.update({'class' : 'form_control'})
37
```

Looking at the “manager registration” HTML file we can see how we call the manager form in the HTML form tag. We’d like to point out how this HTML is an extension to our main “base.html” file. All HTML files are in the template folder.

HTML Template

```
{% extends 'base.html' %}
{% load static %}

{% block content %}
<link href="{% static '/css/login.css'%}" rel="stylesheet">
<link href="{% static '/css/footer.css'%}" rel="stylesheet">
<nav class="nav_bottom">
<h1> Manager Registration</h1>
</nav>
<div class = "block">
    <div class= "bezel_e">

<form method="post">
    {% csrf_token %}
    {% for field in managerregistration_form %}
        <p>
            {{field.label_tag}}
            {{field}}


            {% if field.help_text %}
                <small  style="color: rgb(0, 0, 0);">{{field.help_text | safe}}</small>
            {% endif %}


            {%for error in field.errors%}
                <p style="color: red;">{{error}}</p>
            {% endfor %}
        </p>

    {% endfor %}
    <button type="submit">Register</button>



</form>
</div>
</div>

{% endblock content %}
```

We can now see the whole picture of how the Django MVT model works. Below is the UI output of the manager registration form which users will fill out to register new managers for the company. The user has to input their email that they use for work as well as create a password that complies with the directions stated below the password fields. Finally the user inputs their company ID that is given by the admin.

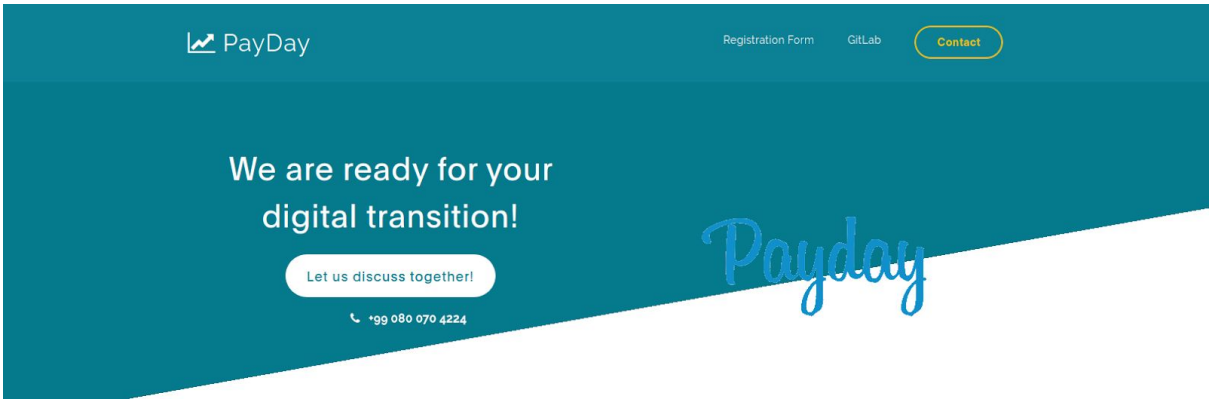


● An interface rationale

For the UI of PayDay we have decided to utilise Bootstrap after testing the UI we developed from scratch. Although it was a good skeleton we experienced a lot of accessibility and scalability issues for different devices. Having applied Bootstrap on our project we saw an increase of accessibility especially on mobile devices. Bootstrap is one of the most popular open source frameworks for web development. It is also reliable as throughout the year the stability has improved greatly. As we had a hard deadline, a time constraint tied with preparation for exams and the fact that we don't have years of experience in web development and UI design it was a wise call to apply this method for PayDay. It ticks the attractive look we hoped for and accessibility on different devices. We can safely apply this as it also is browser compatible. We have added screenshots of our own design in the appendix[2]. Below is a showcase of PayDay design using Bootstrap.

Front Page of Payday

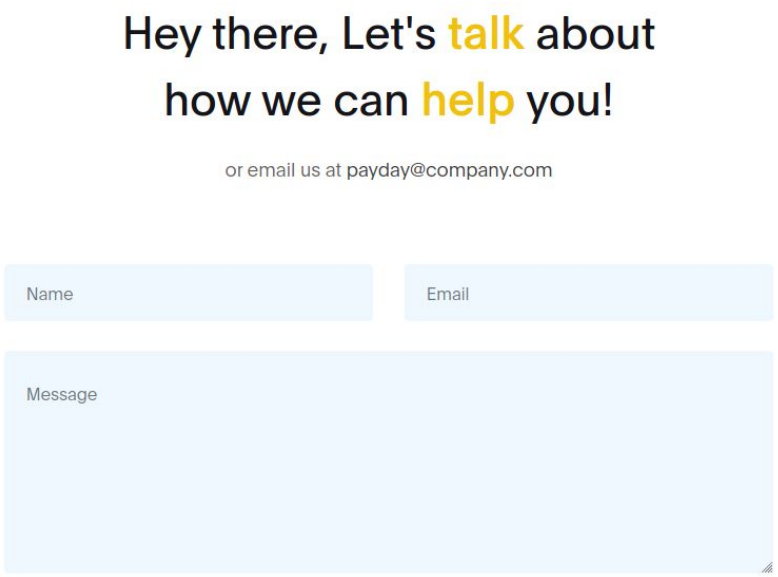
In the navigation bar we have added our project gitlab link as well as an auto scroll button to the registration form.



Both the “let us discuss together” and the contact button takes to the contact.html page which can be used to connect new potential clients with us.

PayDay Contact page

The contacts page complies with the same design throughout the website. A mock contact form is created to illustrate how clients can simply ask for a call back or ask for a quote.



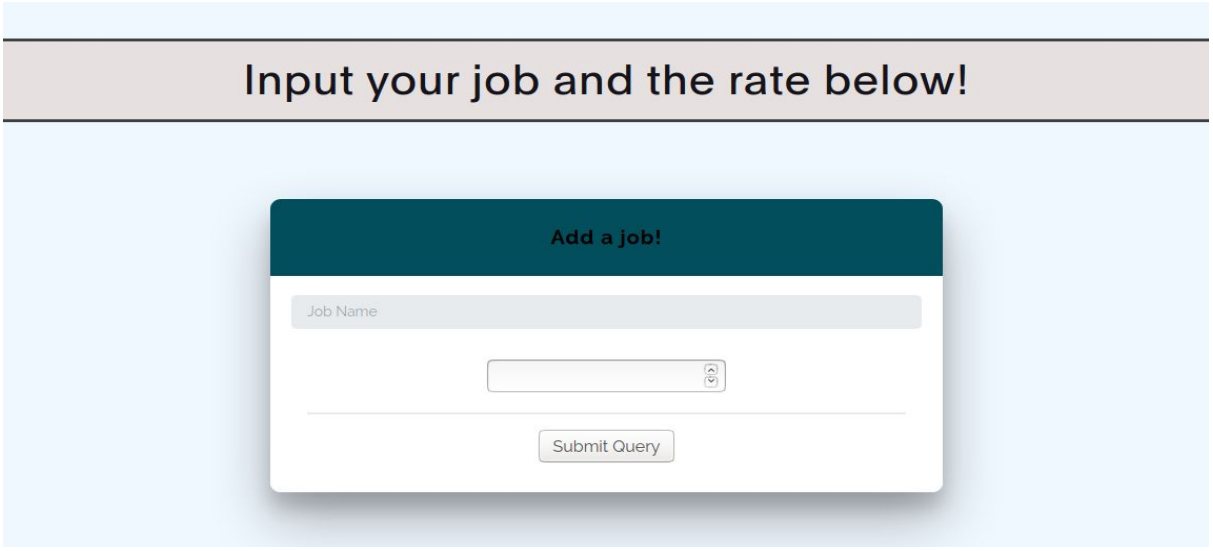
Employee Login Screen

Once an admin purchases licenses from PayDay. Employees can register and then Login. A login page is shown below. Users can choose what option they would like to choose, if it is a manager who wants to login or register they would press on the correlating buttons. The dark background coupled with light font as well as a large enough font and button size can be easily seen by any user type.

Add a job form

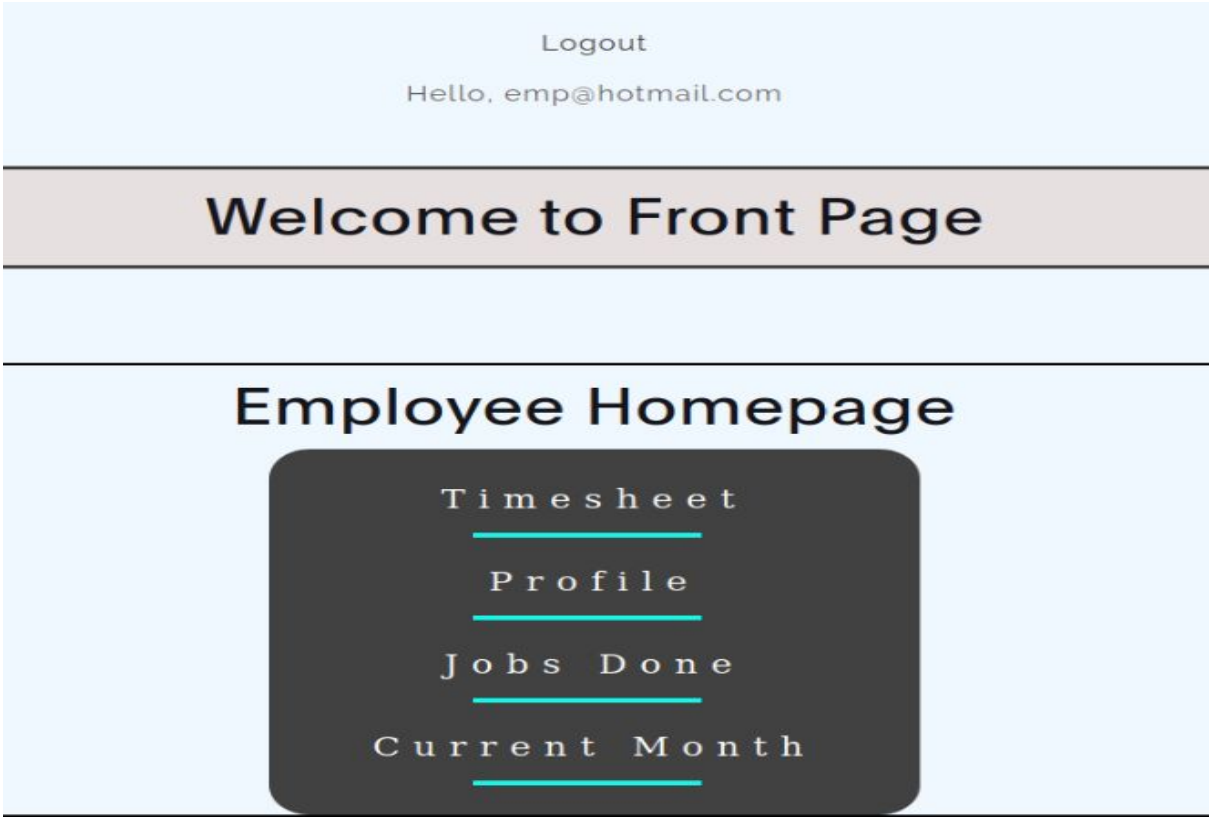
This form is used by the manager to create jobs and add rates to the jobs for their employees. The form complies with the color scheme of PayDay as well as having large input sections which will make it much easier and stress free to use the form. We have also

implemented a slight gap for those people who have motor issues. This would enable them to actually click on the item they want, without accidentally clicking on the different form.



Employee Homepage view

Once a user is logged in, in this case we have an employee who's logged in. They are presented with a few options. The timesheet button will allow the user to input hours into the timesheet. Profile button gives the overview of the profile. In the jobs done employees can check the jobs they have completed that their manager has assigned to them. Finally, in the current month employees can see all the outputs of the timesheet that they have filled out.



- **A description of the technical challenges to be solved in bringing this project to market.**

One of the technical challenges to be solved is the ever increasing complexity in developing a product. Since we do not have much knowledge and experience in developing a product it will be quite challenging to finish PayDay in a proper timely manner. Therefore, we would require a talented development team of at least 2 people in order to help with the product.

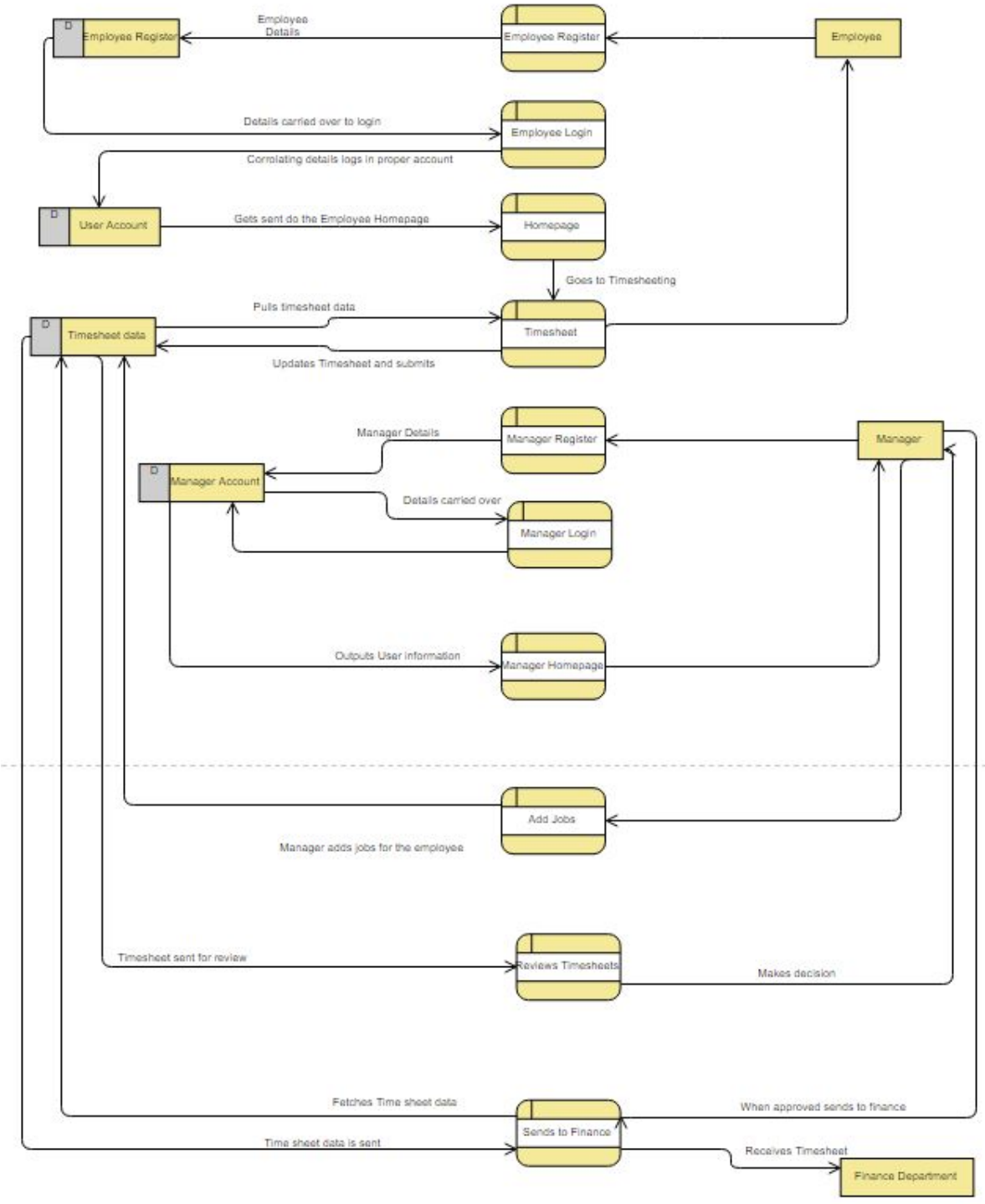
A technical challenge of the prototype development of PayDay was user registration and logging users in. This was a challenge as this was the first time either team member had implemented user registration and logging in type of code. What made this even more challenging was the fact that we had 2 types of users and we had to be able to differentiate between the two. The 2 users were employee and manager. We had to ensure employees can only register as employees, managers can register as managers, and employees aren't able to login as managers. This was on top of the normal requirements of employees and managers being able to register and login.

We have also experienced a UI challenge of ensuring it is accessible on a wide range of devices and screen sizes. Since this was a problem with our own styling we went with the Bootstrap route. This would fix most of the problems we experienced and only had to tweak the scalability of the components of PayDay. Such as the timesheet and login items.

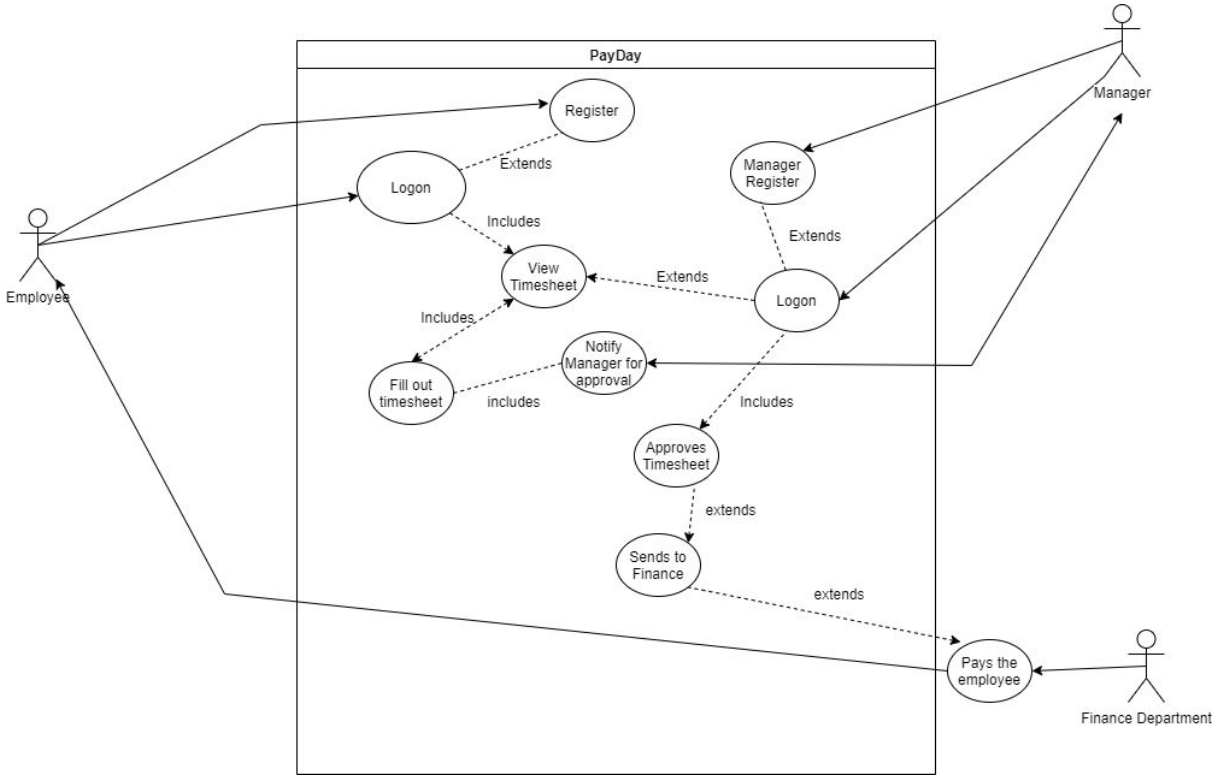
- **DFDs & UML use cases for the prototype. An understanding of how this fits into a larger vision of a product.**

With further development one of the components we envision is adding the email notifications. These would be very important when there's a change by the manager or if the employee submitted the timesheet for review the manager would be notified so no time is wasted. The manager would then notify the Finance to check and pay the employee the amount provided. Below is a DFD and an UML use case for the prototype we currently have developed. Once further development commences both diagrams will expand to accommodate the extra functionality.

Data Flow Diagram



UML Use Case Diagram



Test cases

The test cases we created were all based on the UML use case above. We have 2 different types of users, therefore some tests we conduct with one user, would have to be replicated with the other user. For example, registering users is different for both employee and manager, therefore 2 tests would need to be carried out for registering users.

The tests carried out were:

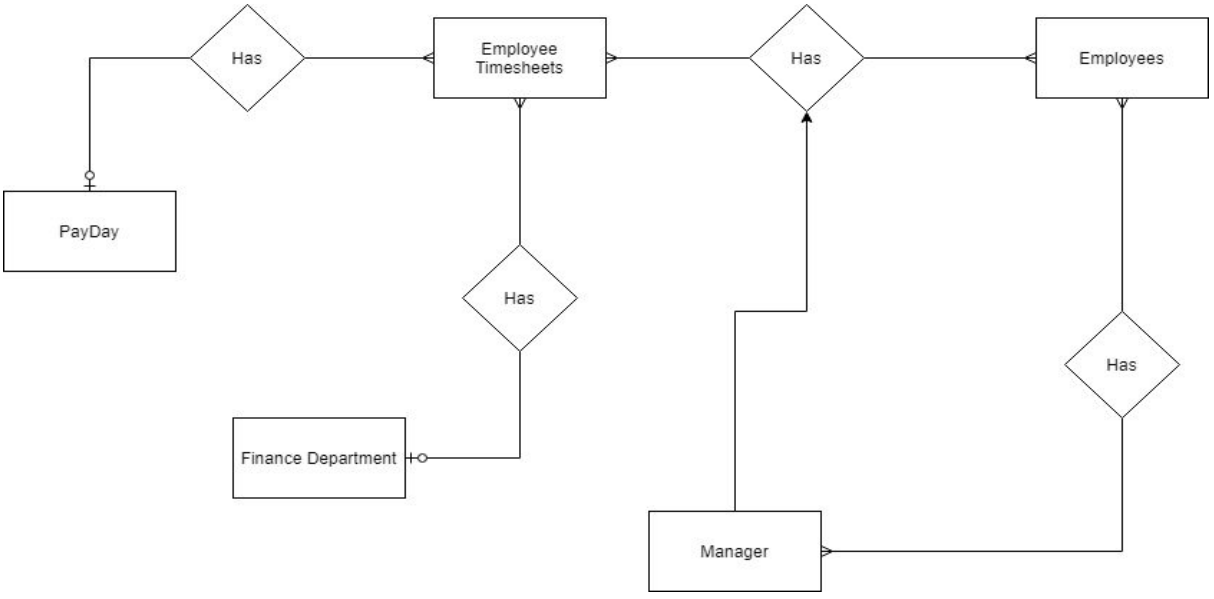
Login as employee/manager
Logout as employee/manager
Register as employee/manager
Create timesheet as employee/manager
Show timesheet for the month for employee and manager
Employee shouldn't be able to log in as manager ands vise versa
Add job as manager

In total we had a total of 13 test cases. This didn't take too long to do as they were core functions that needed to work properly in order for the app to work. Since they were core functions we took extra time with them and ensured they work correctly like they were supposed to. The main function we looked into was users being able to get in to/create their account. We made sure to test all aspects of user registration/login/logout as it was our first time having to implement that type of code. Having 2 types of users only served to make it

more challenging for us. That is the main reason why we had a total of 8 tests on just user registration and login.
We have also tested the UI for its usability and compatibility with different web browsers on different operating systems and devices. See the image below of the table. This would ensure that our website is compatible and accessible for different users.

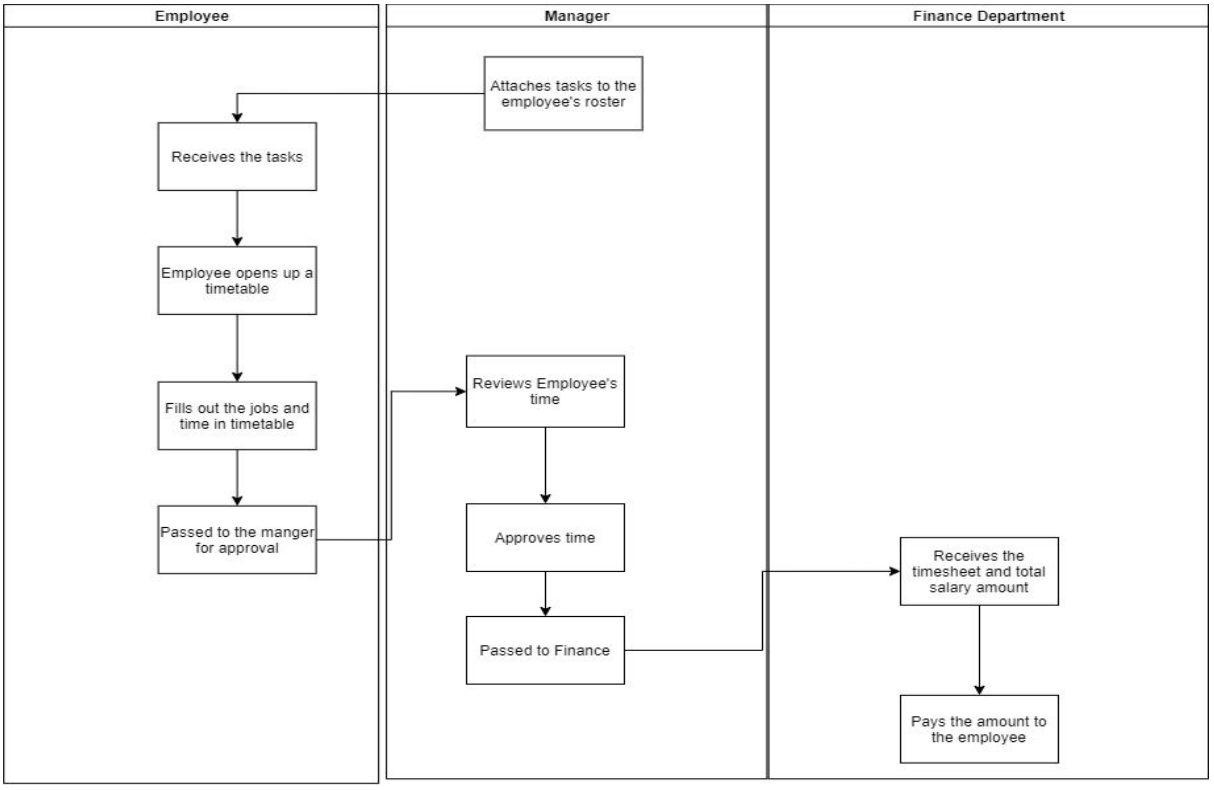
UI Design Accessibility	Google chrome	Edge	Firefox	Samsung Internet
Windows	Yes	Yes	Yes	N/A
Linux	Yes	N/A	Yes	N/A
Android	Yes	N/A	N/A	Yes

Owner's Point of view Zachman Diagrams
Data(What) - Semantic Model



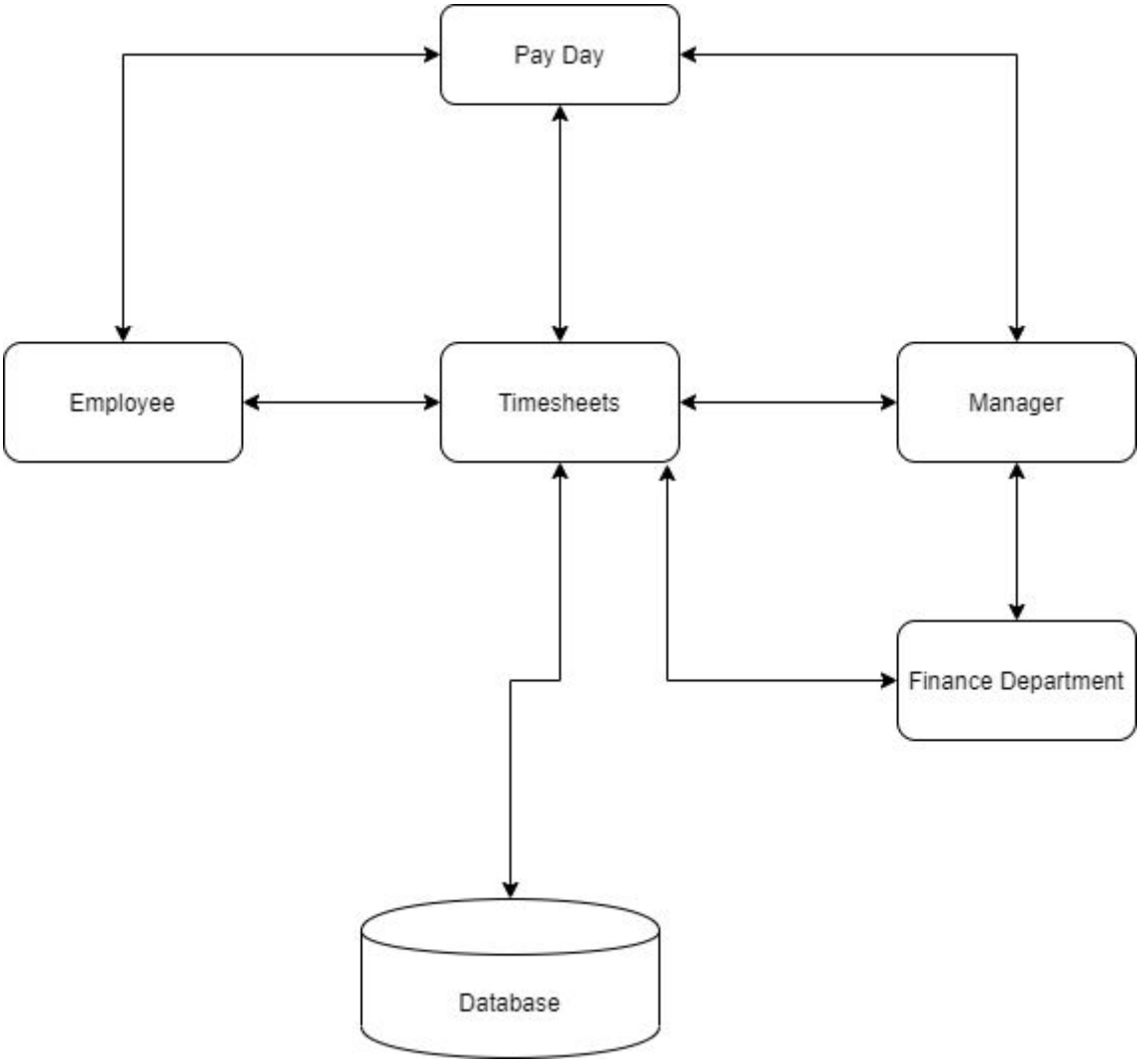
- This diagram shows the relationship between PayDay itself, Employee Timesheets, Employees, Managers and Finance Department. All of these entities are required to register and use PayDay to its fullest potential.
- Employee Timesheets are created on the Payday App. Which they change and then send to the manager to view. The manager chooses to approve or decline.
- If approved they move to the finance department.

Function (How) - Business Process Model



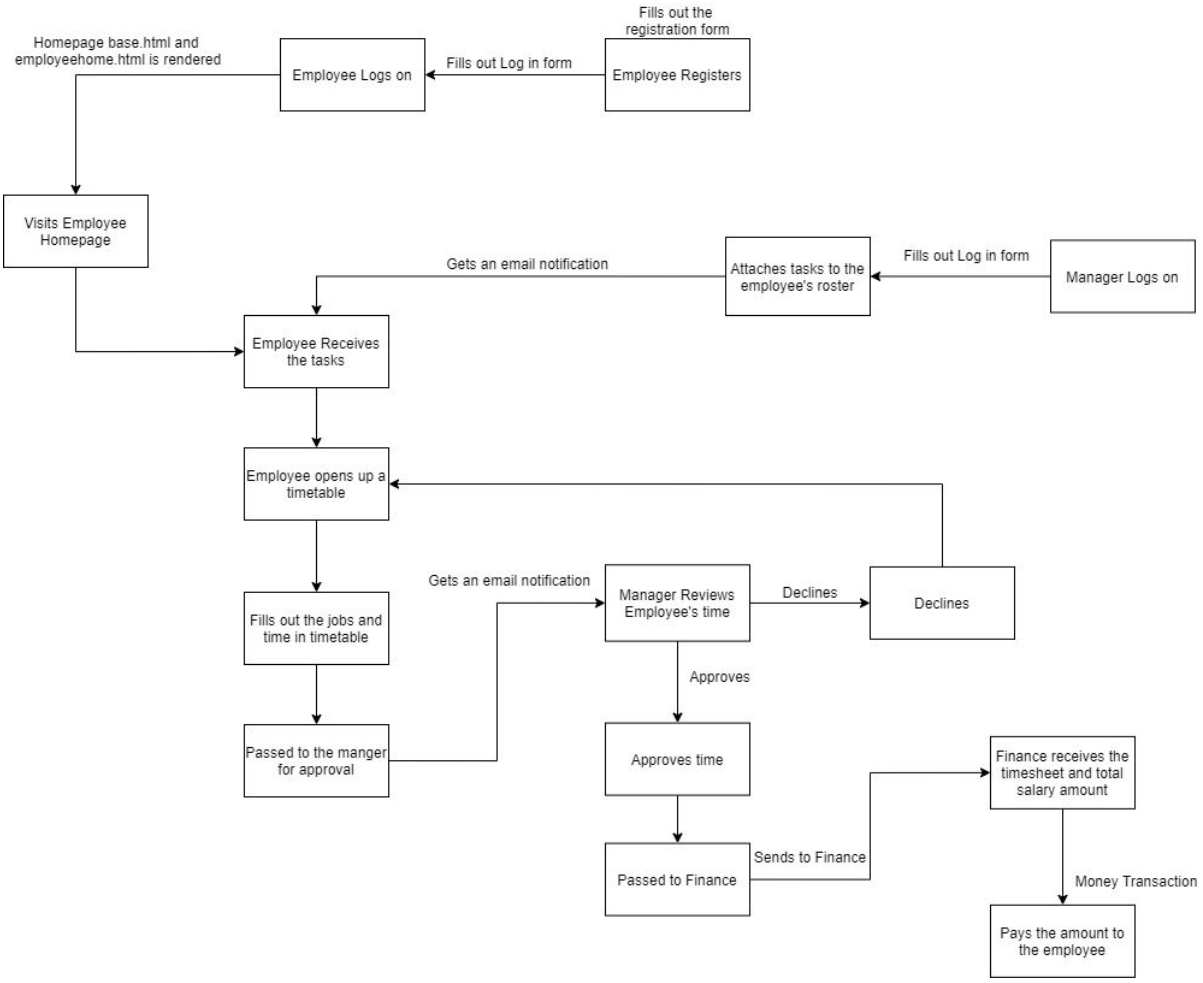
- This swimlane model represents the work cycle of the Employee Timesheets.
- Manager Attaches tasks to the employee's Timesheet.
- Once the employee finishes the tasks he/she ticks it off.
- The employee then fills out the hours spent working and the timesheet is passed to the manager.
- Manager reviews the timesheet and approves it. Timesheet is passed to the Finance Department.
- The Finance Department Pays to the employee.

Network (Where) - Logistics Network



- PayDay comprises a single Database.
- Essentially both the employee and the manager can interact with the database through the timesheets as they are created and updated on the database.
- The Finance Department essentially sees the timesheets that are connected with the database. However they do not have the direct connection to the database.

People (Who) - Workflow Model



- This workflow model shows the workflow process for the employee's timesheet.
- It asks two important questions to make sure the next process can start.
- If the user is not registered on PayDay they cannot avail of the services.
- If the manager does not approve the submitted timesheet times, the timesheet is not sent to the Finance Department.

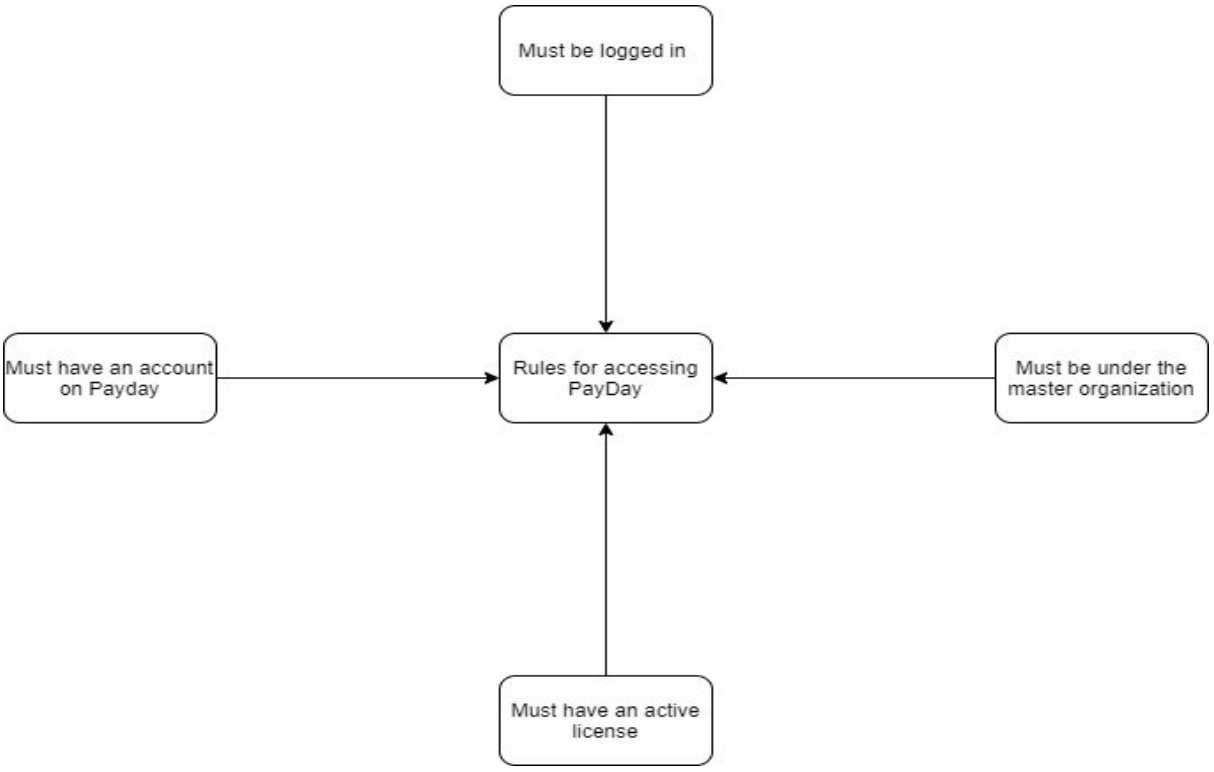
Time (When) - Master Schedule

Tasks - Submitting a timesheet			Time taken to do activity				
Employee Register	1 minute						
Employee Logon		1 minute					
Fills out timesheet and submits			5 minutes				
Manger reviews and approves				5 minutes			
Manger passes to fianance department					20 seconds		
Finance department reviews the timesheet						5 minutes	
Finance pays the employee							2 minutes

- Below is a diagram showing how long it will take for the whole process of getting onto Payday, filling out timesheets, manager reviewing and finance department paying the

employee. This is calculated with a slight overhead as some timesheets may be shorter if an employee worked less hours therefore less to review.

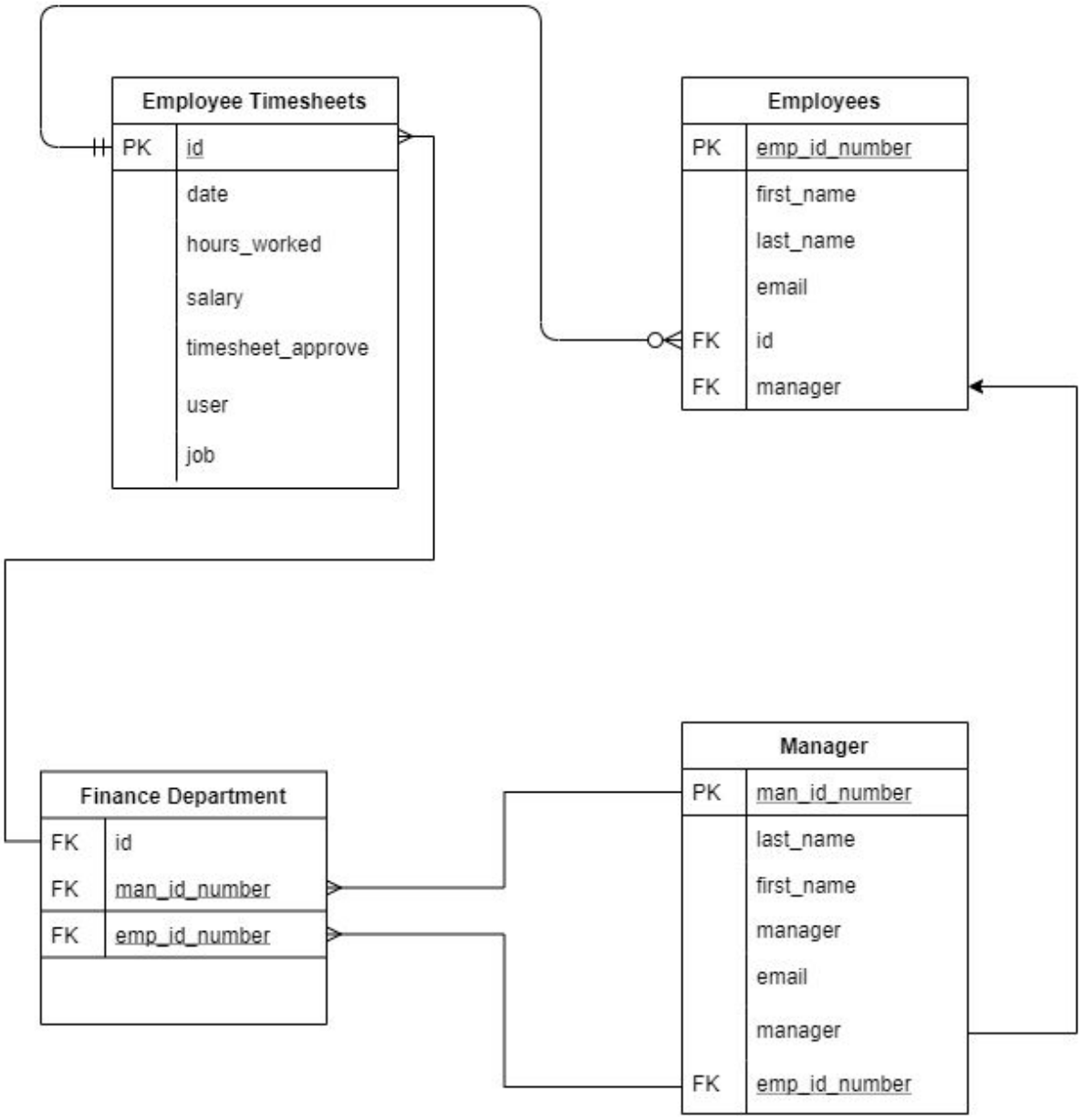
Motivation (Why) - Business Plan



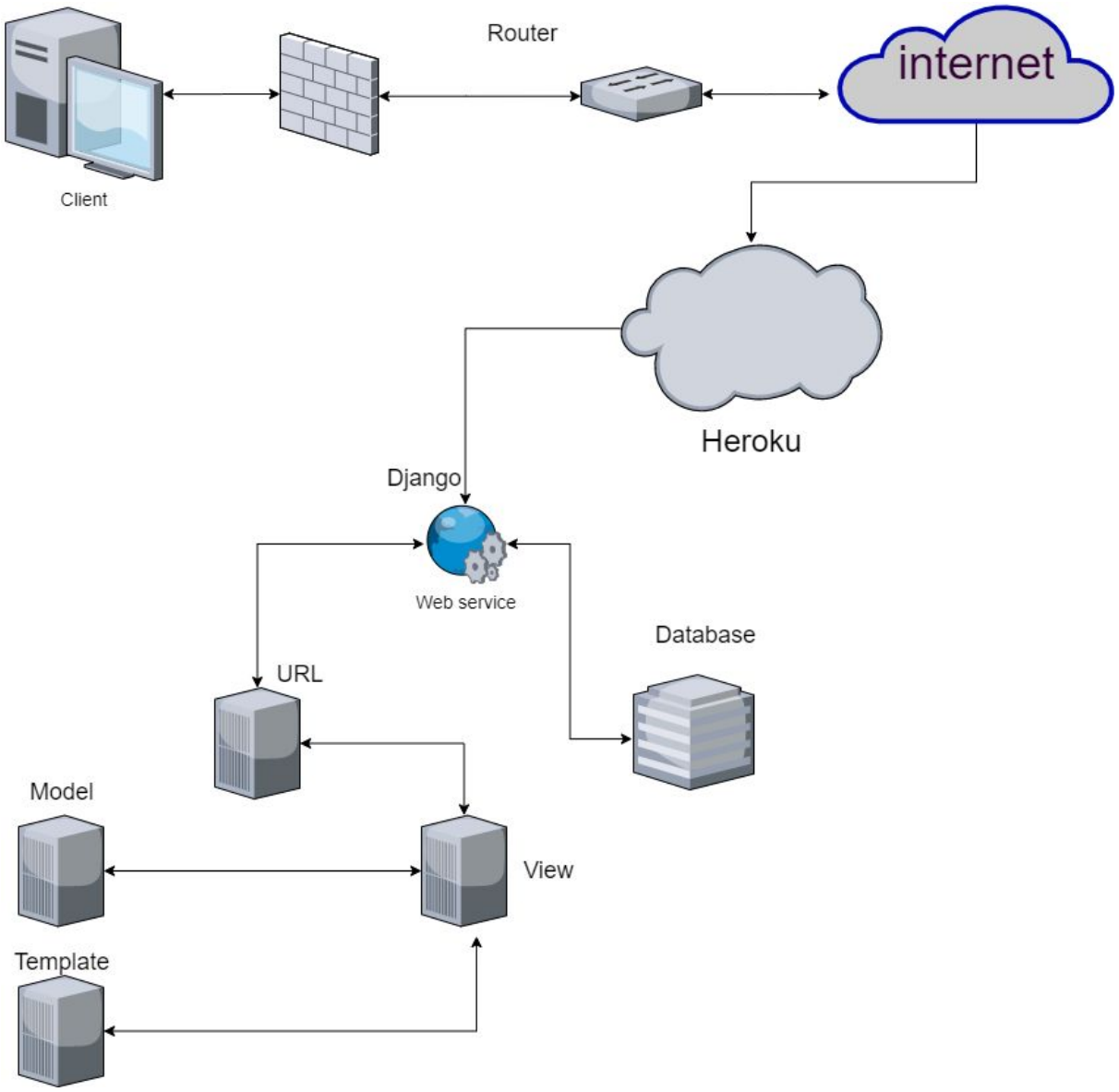
- Above are the rules for accessing PayDay. They do not change whether for designer or owner.

Designer’s viewpoint

Logical Data Model

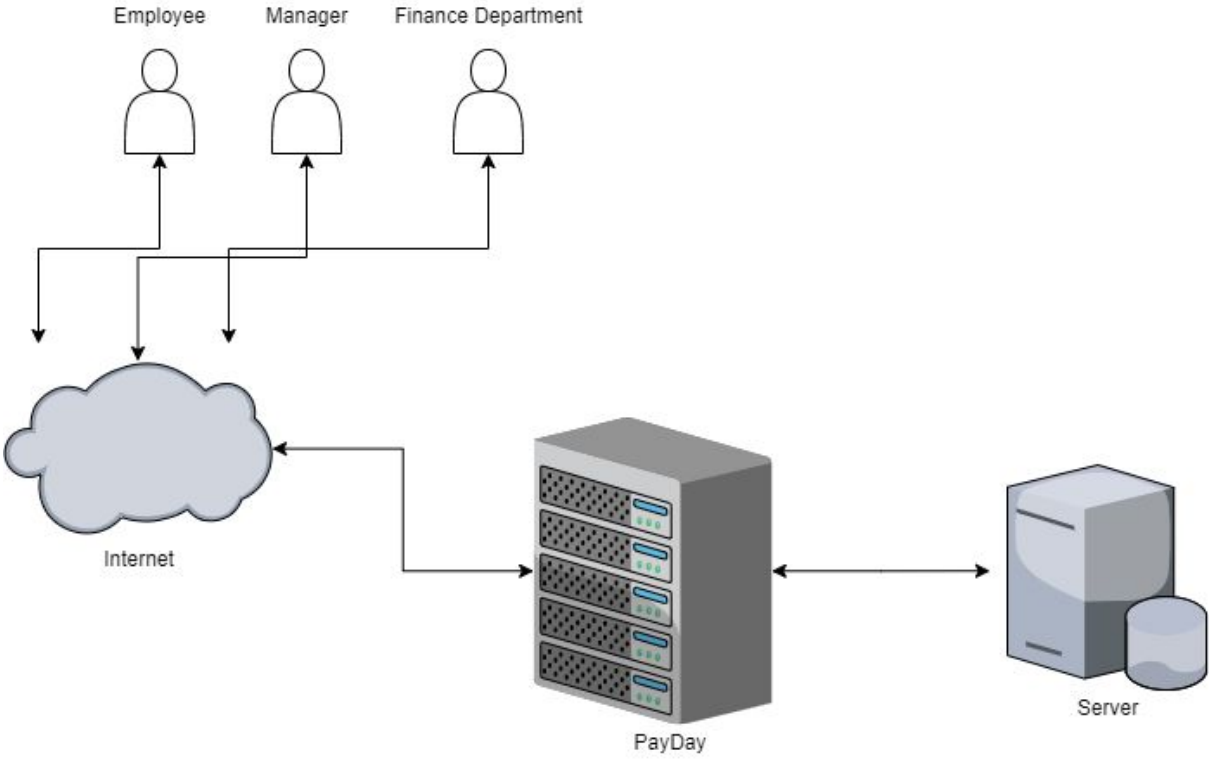


Function (Architecture of Accessing PayDay)



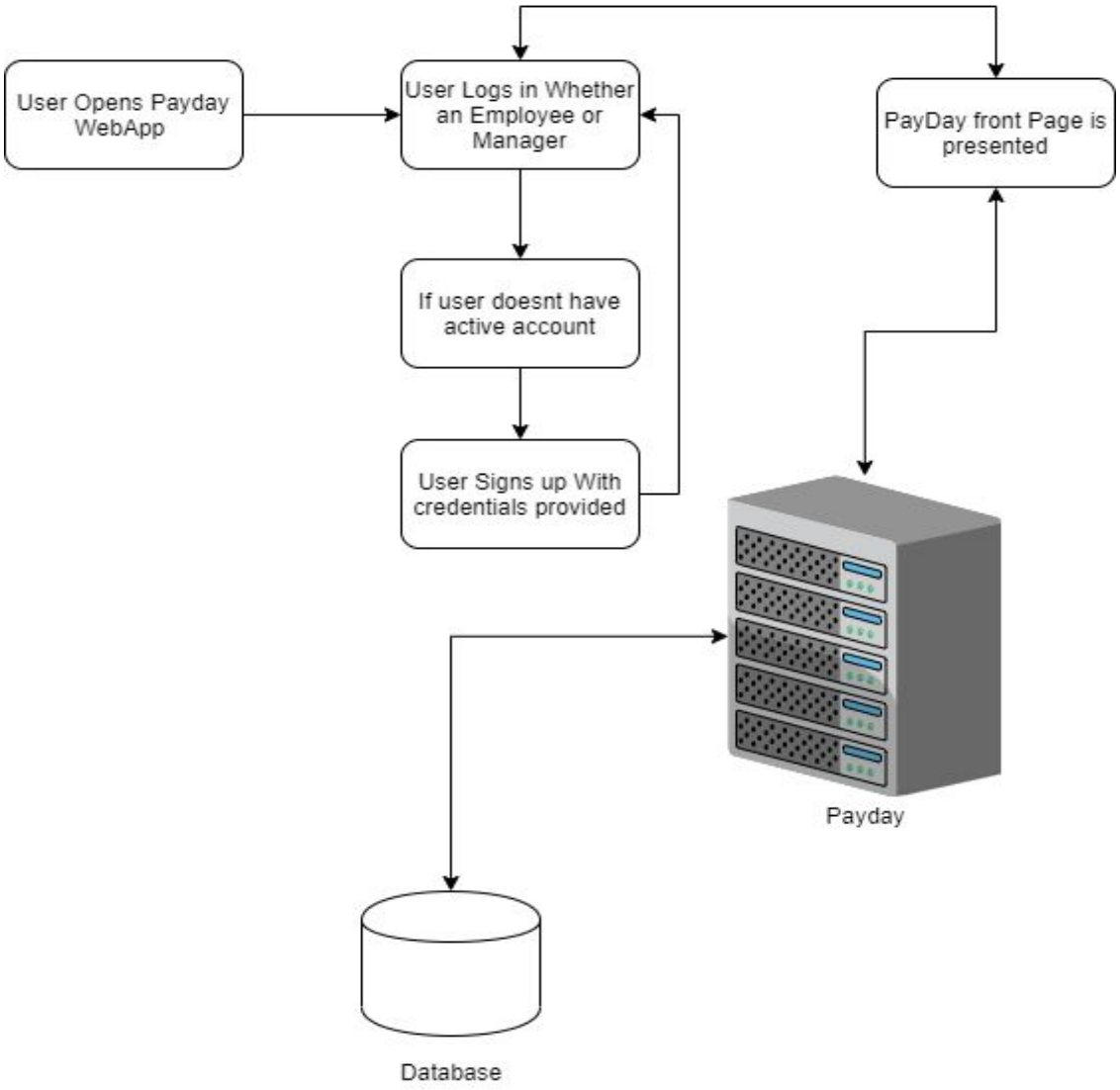
- This is an illustration that shows how PayDay works on the functional level.
- The user would connect through the internet into the cloud provider (Heroku)
- Django web app runs on Heroku.
- Django has the models which are connected to the database.
- Django utilises the MVT model to generate front end views.

Network (Architecture of Accessing PayDay)



- The network diagram shows how different users would interact with the PayDay app.
- All users would use the internet to use Payday.
- Payday runs on the cloud server.

People (Who) - Human Interface Architecture

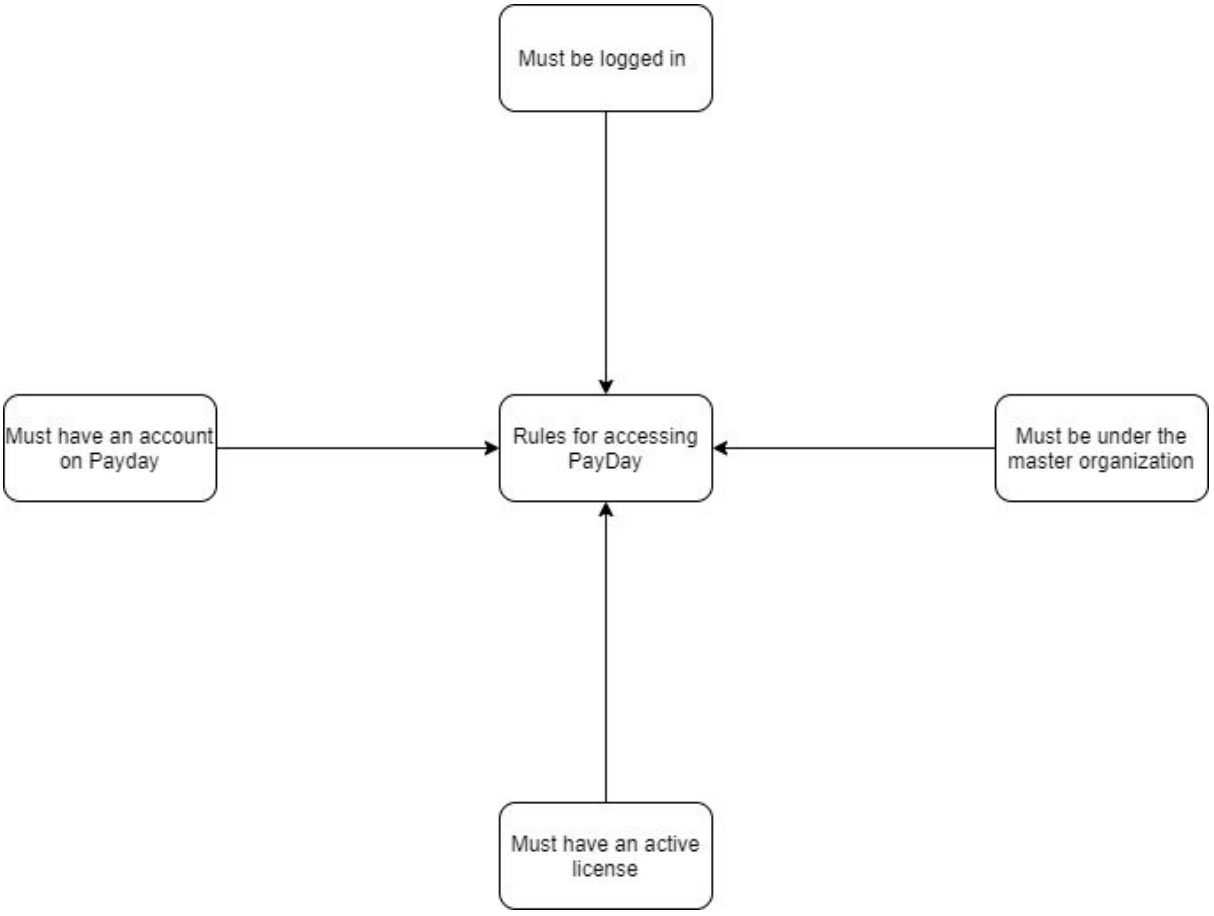


- The human interface architecture illustrations how users would interact with the interface to get onto PayDay.
- The result would be users being able to login to use the PayDay front page with their credentials.
- If the user does not have the account created, they would not be able to logon.

Time (When) - Processing structure

Tasks - Submitting a timesheet			Time taken to do activity						
Employee Logon	1 minute								
Redirects to Homepage		3 seconds							
Fills out timesheet and submits			5 minutes						
Submit is passed to the manager				3 Seconds					
Manger reviews and approves					5 minutes				
Manger passes to fianance department						5 seconds			
Response if received from the manager							3 seconds		
Finance department reviews the timesheet								5 minutes	
Finance pays the employee									2 minutes

Motivation (Why) - Business Rule Model



- Above are the rules for accessing and using PayDay.

Appendix

MIHAIL GAIDAU

43 Mount Symon Green, Clonsilla, Dublin 15
0873234121 ◇ mihailgmol@hotmail.com

EDUCATION

B.Sc. Enterprise Computing, *2015 - 2020*
Dublin City University, School of Computing and Engineering
Fourth Year: In progress.
Third Year: 2.1

Leaving Certificate *2010 - 2015*
Coolmine Community School, Blanchardstown
Obtained 370 CAO Points

PROJECTS

Cloud Computing Configuration:
Constructed and configured a functioning Micro Cloud network made up of a Ubuntu Server and three Windows client computers using VMware Workstation.

Credit Card Component:
Used REACT to create and design a credit card interface. For my project I have designed a card similar to a Revolut credit card design.

Portfolio Website:
Designed and created a website for personal use. It showcases my portfolio of photography from different geographic spots. Bootstrap 4 has been used for styling.

React Weather App:
Created a simple weather app in React that uses OpeWeatherMap API. The app outputs key weather information for the location that the user searched for.

EatAtDCU:
Created a website using Django framework that outputs important information about cafe's and restaurants across all 3 DCU campus'.

SKILLS

Technology Used	Python, Django, REACT, PostgreSQL, HTML, CSS, XML, R.
Software & Tools	MS Office, Latex, Visual Studio Code, MSM, SAP PHR.
Language Skills	Russian, English are both native to me.
Other Skills	Cloud Computing, Networks, Linux, PyUnit, Git, Problem Solving.

WORK EXPERIENCE

IT Help Desk *October 2019 - Present*
Clean Sweep Services

- Creating and testing recruitment system
- Researching
- Technical Support
- Implementation of new systems and software

Business Analyst and Tester *May 2019 - September 2019*
ESB

- Worked on a Project involving Win10 Migration and ESB's App store Testing.
- Compatibility tested source files for all business units across the company.
- Solved any queries regarding SAP PHR.
- Heavy Excel use and PowerBI.
- Sharepoint Site Admin.

Takeaway Front Desk *March 2019 - May 2018*
Thai Garden@Home, Coolmine

- Ensuring takeaway operations are being managed correctly.
- Cash Handling
- Managing Drivers
- Customer Interaction

Waiter *June 2017 - December 2018*
Thai Garden Restaurant, Blanchardstown

- Welcomed customers, took orders, served food and drinks.
- Cashier management.
- Solved customer problems.

REFERENCES

Fearghal Traynor:
Test Manager at ESB
Phone Number: 0857331927

Karl McMahon:
Business Analyst at ESB
Phone Number: 0876492598

Amrendra Sahoo:
Project Test Manager, Expleo Contractor at ESB
Phone Number: 0858768822

VINCENT LLOYD YUSON

CONTACT

Address: 32 tory square Waterville
Blanchardstown Dublin 15
Email address: yvincentlloyd@gmail.com
College: Dublin City University
Course: BSc in Enterprise Computing
Phone No: 0877602112
LinkedIn:https://www.linkedin.com/in/vincent-lloyd-yuson-892b20177/

OBJECTIVE

I am a co-operative and diligent student with excellent communication skills. I am very determined, and I give any task given to me 100% effort. College projects and having work experience in my field has taught me how to communicate and work as team effectively. I can work exceptionally well with others to achieve a certain objective on time and correctly.

EDUCATION

Current education:
Dublin City University (DCU) - Enterprise computing

Third year college results
Subject
Overall result:
2nd class honours grade 1 (64%)

Second year college results
Subject
Overall result:
2nd class honours grade 2 (58%)

First year college results
Subject
Overall result:
2nd class honours grade 1 (65%)

Internship Projects/College Projects

Job Briefing Template

- Automated the creation of a Job Briefing Template. Within 2 weeks of starting my internship was tasked to understand their systems and processes and to create the automation for a job briefing template which engineers use for jobs.

Eat at DCU

- Created a website using Django framework and the coding language Python. The function of the website is to show you the specials of the many restaurants in DCU. This includes all DCU's campuses, not only Glasnevin. http://yusonv2.pythonanywhere.com/eatatdcu/

WORK EXPERIENCE

- Internship in OFS (Oilfield Solutions LTD)
  Systems Analyst/DevOps
  (More Information can be given upon request)
  March 2019 – August 2019
    - Kerry Scully (HR Manager OFS)
      Phone: 087146279
- Thai Garden
  February 2019 – April 2019

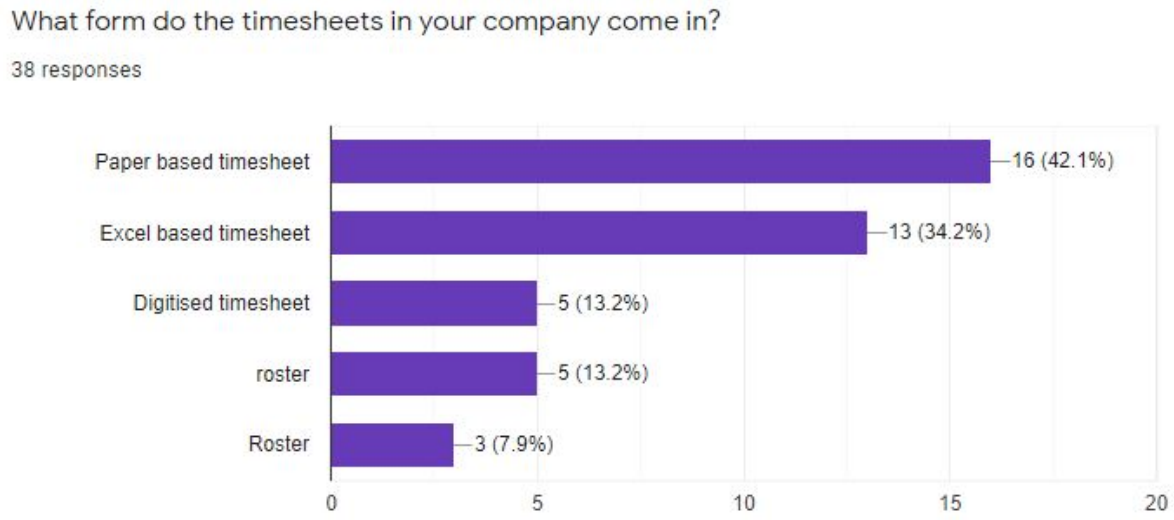
VOLUNTEERING

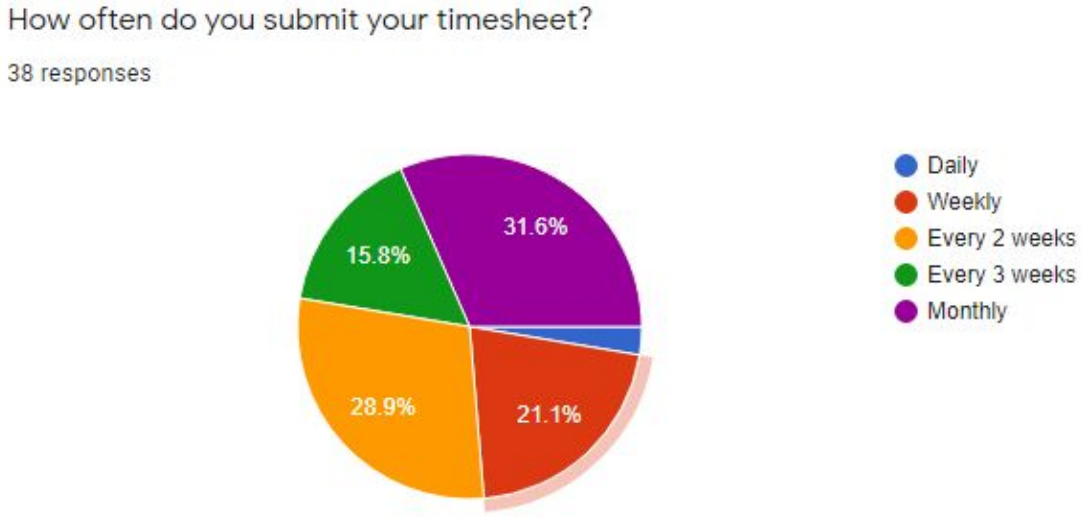
- Volunteered for NCBI charity shop
- Raised money for the Simon community and participated in their fun run
- Heavily involved in volunteering with my local football club Corduff FC

SKILLS

- Operating Systems
    - Windows
    - Linux
    - Ubuntu
- Programming Languages
    - Python
    - Java Script
    - Git
    - Django
    - R statistical software
    - SQL
    - HTML
    - Shell
- Software Tools
    - Microsoft (Word, Excel, PowerPoint, Azure, Dynamics365)
    - Sublime text
- Web development
    - CSS
    - Bootstrap

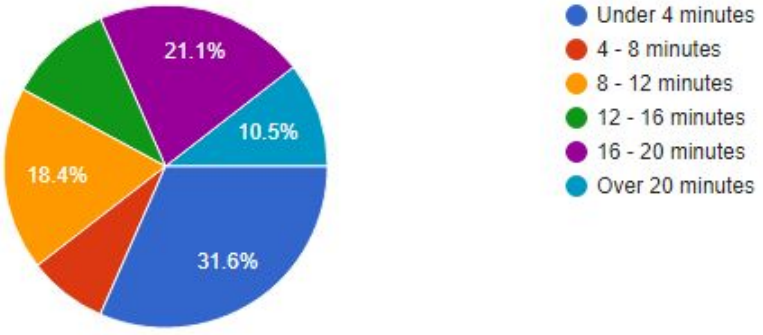
1- https://www.cso.ie/en/releasesandpublications/er/bd/businessdemography2016/





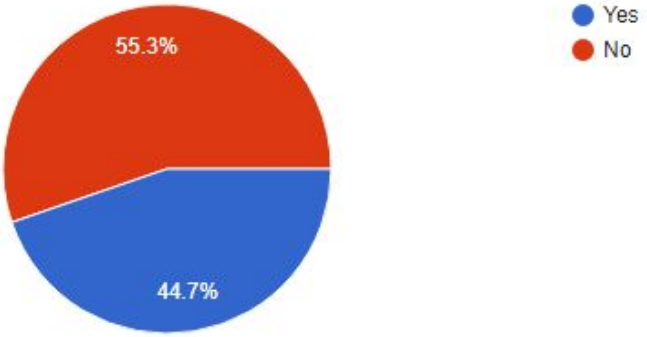
How long does it take for you to fill out the timesheet given to you by your company?

38 responses



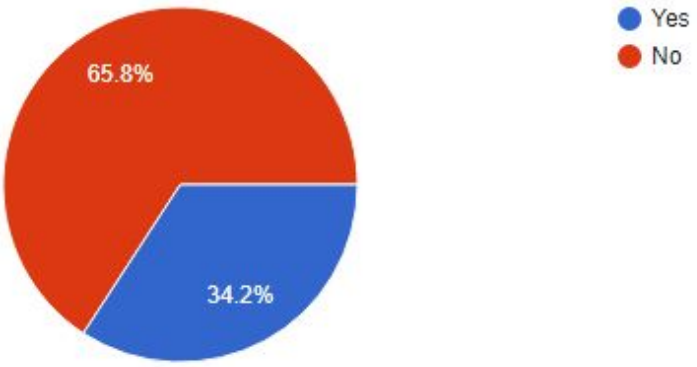
Do you understand your company's payroll process, i.e. what happens after you have submitted your timesheet to getting paid?

38 responses



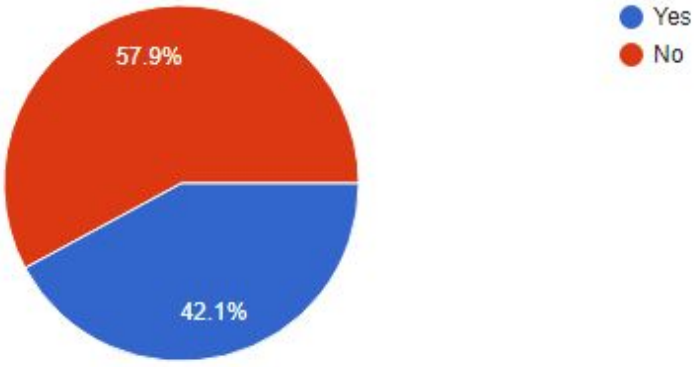
Are you happy with the format of the timesheets that your company has?

38 responses



Do you know what a digitised timesheet is?

38 responses



Would you want to change how your company handles timesheets? If yes then pleases specify how.

11 responses

make it in a away it quicker to do

Time saving digitized time sheets

change to a digitised timesheet

make filling out timesheets easier

quicker way to do time sheets, make more accessible

find a more efficient way of doing timesheets

incorporate digitized timesheets

make them easier to fill out, make them more accessible

change to a more modern e.g. digitised timesheets

Would you want to change how your company handles timesheets? If yes then pleases specify how.

11 responses

change to a digitised timesheet

make filling out timesheets easier

quicker way to do time sheets, make more accessible

find a more efficient way of doing timesheets

incorporate digitized timesheets

make them easier to fill out, make them more accessible

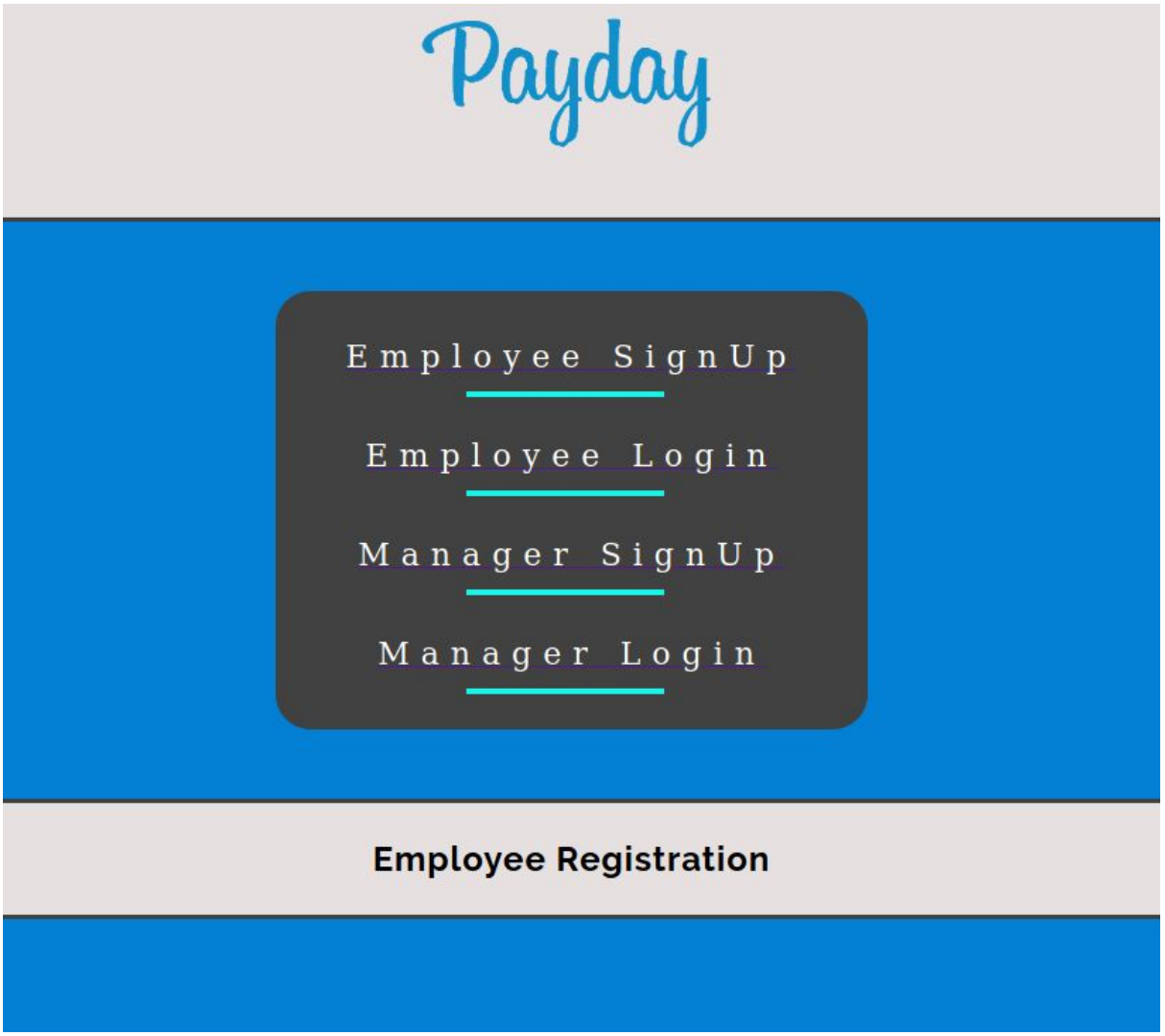
change to a more modern e.g. digitised timesheets

more organsied way of doing time-sheets

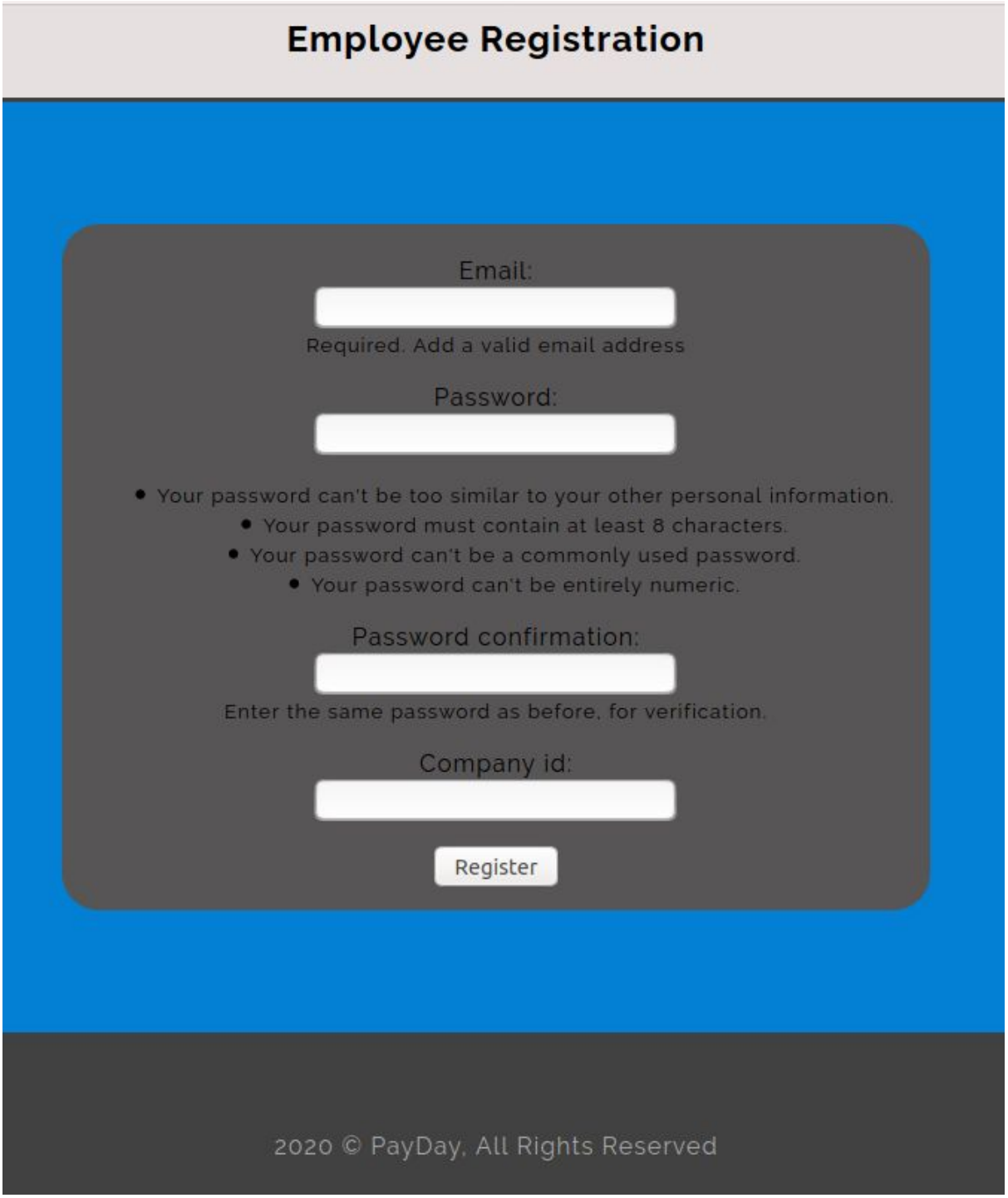
More digitized

2.) Own UI design

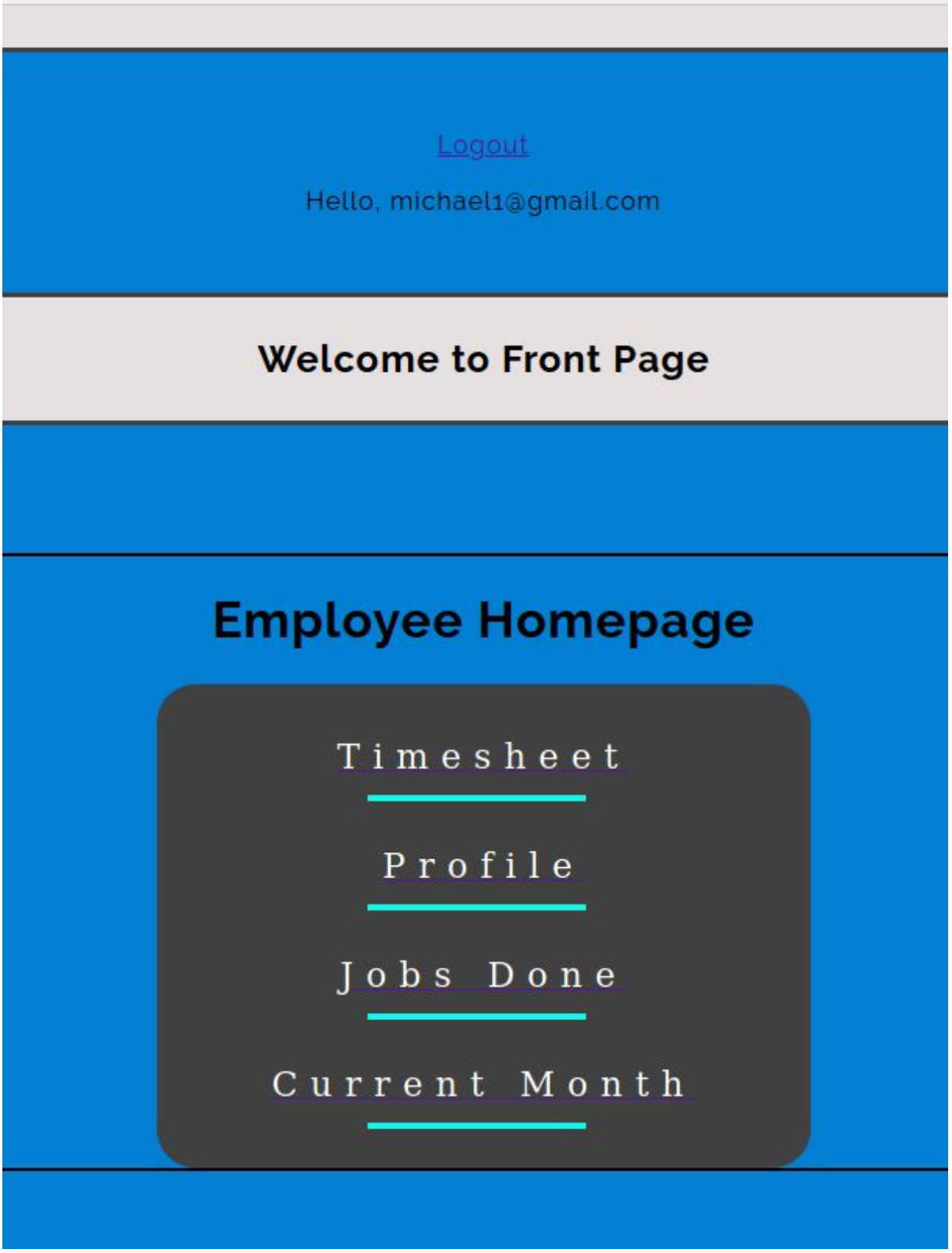
Employee Registration Front page



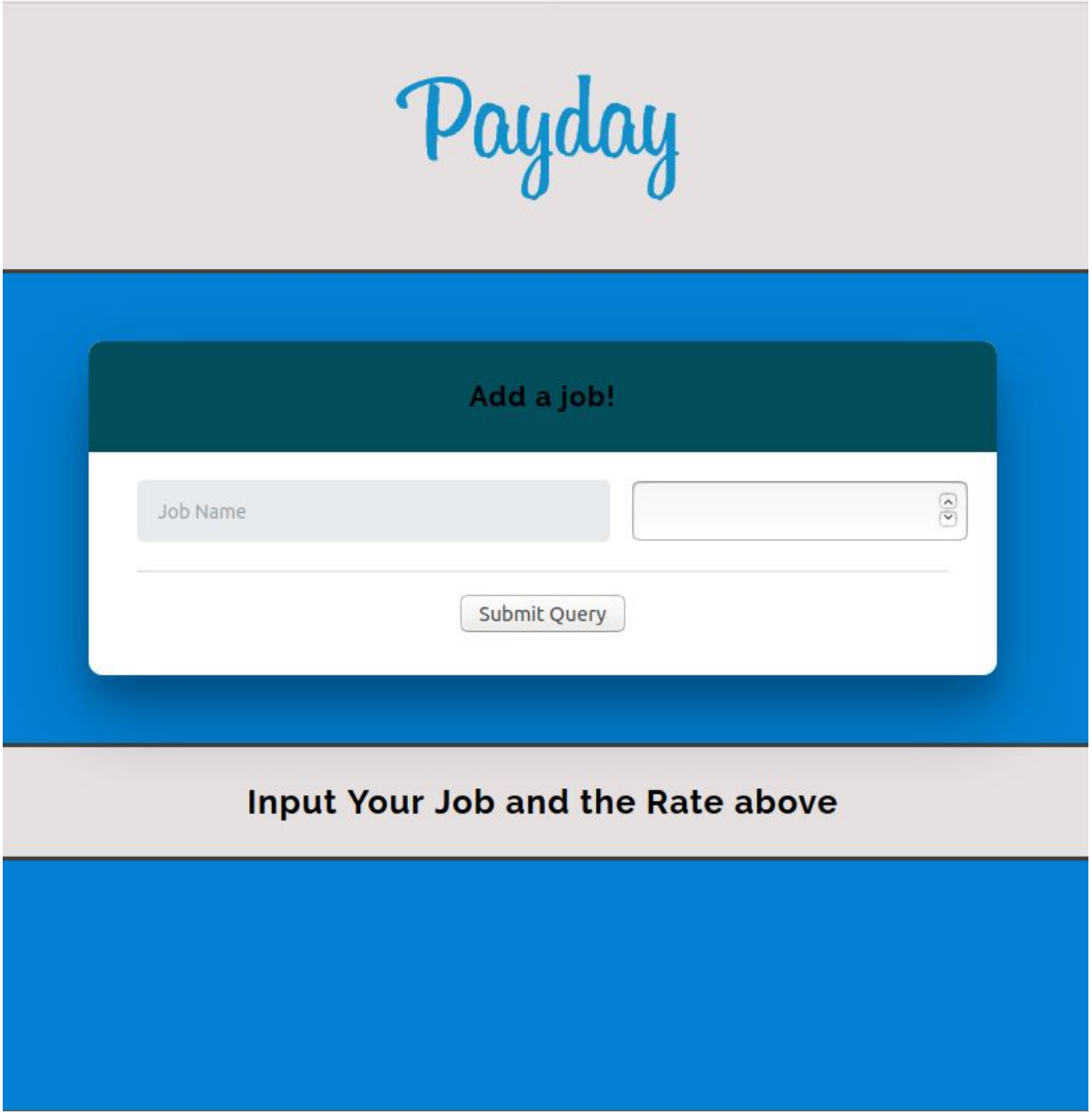
Employee Registration Form



Employee HomePage



Add a job page



TEST CASES

Register as employee

Test case ID	Register as employee	Test designed by	Vincent Lloyd Yuson
Test priority	High	Test date	15/05/2020
Module name	PayDay register screen	Test executed by	Vincent Lloyd Yuson
Test title	Register empoyee	Test execution date	15/05/2020
Description	Test PayDay employee registration		
Pre-conditions	User has not yet registered for PayDay		
Dependencies			

Step	Test steps	test data	Expected results	Actual results	Status	Notes
1	Open PayDay employee registration		Site should open	As expected	Pass	
2	Type in email	email = test@yahoo.com	credentials can be entered	As expected	Pass	
3	Type in Password	Test	credentials can be entered	As expected	Pass	
4	Re-type in Password	Test	credentials can be entered	As expected	Pass	
5	Type in company ID	100	credentials can be entered	As expected	Pass	
6	Click "Register"		customer is registered and logged in	As expected	Pass	

Register as manager

Test case ID	Register as manager	Test designed by	Vincent Lloyd Yuson
Test priority	High	Test date	15/05/2020
Module name	PayDay manager register screen	Test executed by	Vincent Lloyd Yuson
Test title	Register manager	Test execution date	15/05/2020
Description	Test PayDay manager registration		
Pre-conditions	User has not yet registered for PayDay		
Dependencies			

Step	Test steps	test data	Expected results	Actual results	Status	Notes
1	Open PayDay employee registration		Site should open	As expected	Pass	
2	Type in email	email = testmanager@ya	credentials can be entered	As expected	Pass	
3	Type in Password	Test	credentials can be entered	As expected	Pass	
4	Re-type in Password	Test	credentials can be entered	As expected	Pass	
5	Type in company ID	100	credentials can be entered	As expected	Pass	
6	Click "Register"		user is registered and logged in	As expected	Pass	

Login as employee

Test case ID	Login as employee	Test designed by	Vincent Lloyd Yuson
Test priority	High	Test date	15/05/2020
Module name	PayDay employee log in screen	Test executed by	Vincent Lloyd Yuson
Test title	PayDay employee login	Test execution date	15/05/2020
Description	Test PayDay login screen		
Pre-conditions	User has been registered as an employee		
Dependencies			

Step	Test steps	test data	Expected results	Actual results	Status	Notes
1	Navigate to employee login page		Site should open	As expected	Pass	
2	Provide email	email = test@yahoo.com	credentials can be entered	As expected	Pass	
3	Provide password	Test	credentials can be entered	As expected	Pass	
4	Click login button		User is logged into their account	As expected	Pass	

Login as manager

Test case ID	Login as manager	Test designed by	Vincent Lloyd Yuson
Test priority	High	Test date	15/05/2020
Module name	PayDay manager log in screen	Test executed by	Vincent Lloyd Yuson
Test title	PayDay manager login	Test execution date	15/05/2020
Description	Test PayDay manager login screen		
Pre-conditions	User has been registered as an manager		
Dependencies			

Step	Test steps	test data	Expected results	Actual results	Status	Notes
1	Navigate to manager login page		Site should open	As expected	Pass	
2	Provide email	email = testmanager@ya	credentials can be entered	As expected	Pass	
3	Provide password	Test	credentials can be entered	As expected	Pass	
4	Click login button		User is logged into their account	As expected	Pass	

Logout as employee

Test case ID	Employee logout	Test designed by	Vincent Lloyd Yuson
Test priority	High	Test date	15/05/2020
Module name	PayDay employee logout screen	Test executed by	Vincent Lloyd Yuson
Test title	Logout employee	Test execution date	15/05/2020
Description	Logout of employee account		
Pre-conditions	user needs to be logged into employee account		
Dependencies			

Step	Test steps	test data	Expected results	Actual results	Status	Notes
1	navigate to employee homepage		site should open	As expected	Pass	
2	click logout		site should redirect you to another page indicating you have logged out	As expected	Pass	

Logout as manager

Test case ID	Manager logout	Test designed by	Vincent Lloyd Yuson
Test priority	High	Test date	15/05/2020
Module name	PayDay manager logout screen	Test executed by	Vincent Lloyd Yuson
Test title	Logout manager	Test execution date	15/05/2020
Description	Logout of manager account		
Pre-conditions	user needs to be logged into employee account		
Dependencies			

Step	Test steps	test data	Expected results	Actual results	Status	Notes
1	navigate to manager homepage		site should open	As expected	Pass	
2	click logout		site should redirect you to another page indicating you have logged out	As expected	Pass	

Create employee timesheet

Test case ID	create timesheet employee	Test designed by	Vincent Lloyd Yuson
Test priority	High	Test date	15/05/2020
Module name	PayDay employee timesheet screen	Test executed by	Vincent Lloyd Yuson
Test title	Employee timesheet	Test execution date	15/05/2020
Description	employee should be able to successfully create a timesheet		
Pre-conditions	user needs to be registered as employee and is logged into their account		
Dependencies			

Step	Test steps	test data	Expected results	Actual results	Status	Notes
1	Navigate to employee homepage		Employee homepage should open	As expected	Pass	
2	Click on "Create Timesheet"		Takes you to your didgitized timeshe	As expected	Pass	
3	Fill out timesheet	hours worked = 5, job = engineer	Able to enter necessary fields	As expected	Pass	
4	Click create timesheet		Timesheet is created	As expected	Pass	
6						

Create manager timesheet

Test case ID	create timesheet manager	Test designed by	Vincent Lloyd Yuson
Test priority	High	Test date	15/05/2020
Module name	PayDay manager timesheet screen	Test executed by	Vincent Lloyd Yuson
Test title	manager timesheet	Test execution date	15/05/2020
Description	manager should be able to successfully create a timesheet		
Pre-conditions	user needs to be registered as manager and is logged into their account		
Dependencies			

Step	Test steps	test data	Expected results	Actual results	Status	Notes
1	Navigate to manager homepage		manager homepage should open	As expected	Pass	
2	Click on "Create Timesheet"		Takes you to your didgitized timeshe	As expected	Pass	
3	Fill out timesheet	hours worked = 5, job = engineer	Able to enter necessary fields	As expected	Pass	
4	Click create timesheet		Timesheet is created	As expected	Pass	
6						

Monthly timesheet employee

Test case ID	Monthly timesheet employee	Test designed by	Vincent Lloyd Yuson
Test priority	High	Test date	15/05/2020
Module name	Monthly timsheet employee screen	Test executed by	Vincent Lloyd Yuson
Test title	Monthly timesheet employee	Test execution date	15/05/2020
Description	Test whether monthly employee timesheet page outputs the employee's timsheets for the month		
Pre-conditions	Employee is registeredand logged into their account and has already created timesheet(s) for that current month		
Dependencies			

Step	Test steps	test data	Expected results	Actual results	Status	Notes
1	Navigate to employee homepage		Employee Homepage should open	As expected	Pass	
2	Click on "Timesheets for the month"	date = 15-05-2020, hours worked = 5,	Shows timesheet(s) created for that current month with the data tested	As expected	Pass	

Monthly timesheet manager

Test case ID	Monthly timesheet manager	Test designed by	Vincent Lloyd Yuson
Test priority	High	Test date	15/05/2020
Module name	Monthly timsheet manager screen	Test executed by	Vincent Lloyd Yuson
Test title	Monthly timesheet manager	Test execution date	15/05/2020
Description	Test whether monthly manager timesheet page outputs the manager's timsheets for the month		
Pre-conditions	manager is registered and logged into their account and has already created timesheet(s) for that current month		
Dependencies			

Step	Test steps	test data	Expected results	Actual results	Status	Notes
1	Navigate to manager homepage		manager Homepage should open	As expected	Pass	
2	Click on "Timesheets for the month"	date = 15-05-2020, hours worked = 5	Shows timesheet(s) created for that current month with the data tested	As expected	Pass	

Add jobs as a manager

Test case ID	Add Jobs	Test designed by	Vincent Lloyd Yuson
Test priority	High	Test date	15/05/2020
Module name	Add Jobs screen	Test executed by	Vincent Lloyd Yuson
Test title	Add Jobs	Test execution date	15/05/2020
Description	Managers should be able to add jobs		
Pre-conditions	Manager needs to be registered and logged into their account		
Dependencies			

Step	Test steps	test data	Expected results	Actual results	Status	Notes
1	Navigate to manager homepage	job	manager Homepage should open	As expected	Pass	
2	Click on "jobs"	job name = roofer, rate = 8.00 euro	redirects you to add jobs page	As expected	Pass	
3	Enter necesarry fields		able to enter the necessary fileds	As expected	Pass	
4	click add job		Job is added	As expected	Pass	

Employee can’t log in as a manager

Test case ID	Employee can't log in as a manager	Test designed by	Vincent Lloyd Yuson
Test priority	High	Test date	15/05/2020
Module name	employee log in homepage	Test executed by	Vincent Lloyd Yuson
Test title	employee log in as manger	Test execution date	15/05/2020
Description	Employee should be redirected to employee homepage if they try log in as a manaer		
Pre-conditions	employee is registered to PayDay		
Dependencies			

Step	Test steps	test data	Expected results	Actual results	Status	Notes
1	Navigate to manger login page		Site should open	As expected	Pass	
2	Provide email	email = test@yahoo.com	credentials can be entered	As expected	Pass	
3	Provide password	Test	credentials can be entered	As expected	Pass	
4	Click login button		User is logged is redirected into employee homepage as they are not a manger	As expected	Pass	

Manager can't log in as an employee

Test case ID	Manager can't log in as a Employee	Test designed by	Vincent Lloyd Yuson
Test priority	High	Test date	15/05/2020
Module name	Manager log in homepage	Test executed by	Vincent Lloyd Yuson
Test title	Manager log in as Employee	Test execution date	15/05/2020
Description	Manager should be redirected to Manager homepage if they try log in as a employee		
Pre-conditions	Manager is registered to PayDay		
Dependencies			

Step	Test steps	test data	Expected results	Actual results	Status	Notes
1	Navigate to employee login page		Site should open	As expected	Pass	
2	Provide email	email =testmanager@yahoo.com	credentials can be entered	As expected	Pass	
3	Provide password	Test	credentials can be entered	As expected	Pass	
4	Click login button		User is logged is redirected into Manager homepage as they are not a employee	As expected	Pass	

References :

1- https://www.cso.ie/en/releasesandpublications/er/bd/businessdemography2016/

https://templatemo.com/

https://codepen.io/deep1808/pen/aOQqqa