# Introduction

My project is to produce a website and program to allow business owners to manage new job enquiries and keep track of active jobs and create invoices, using all of the data held in a database. I am creating this program for myself as I am hoping to start a local computer repair business in which this type of program would be very useful for receiving enquires and managing any work to be done.

# 3.1.1 Problem Identification

This project should improve flow of work for businesses by improving speed and convenience of enquiring and job managing.

## Customer Enquiries

Enquiring about a problem with a computer from a local business could be inconvenient if the customer has to go to the business physically. If this is implemented into a website, it could be done with little effort. This can be done by hosting a website with a simple form on it. This form can be used to input data into a database, this would be done using a server-side language such as PHP.

## Job Management

The management of jobs and enquiries can be done with a pen and paper easily but as a business grows, space and organisation of these files may become harder and a struggle to maintain, therefor I feel a program interfacing with a database would be much easier to use as everything can be easily located, modified and transferred between tables with minimal effort. This will be fairly simple to implement as Delphi has good database integration with support for SQL to use queries.

## Invoicing

Invoices can be a time consuming process to create, this time could be saved if a template is made in the program for it to autofill information about the customer and produce a simple invoice with details of work carried out and standardised pricing for these services and a total. This can be done with the Microsoft Word integration in Delphi, it allows you to create a document from scratch and input data with simple commands.

# 3.1.2 Stakeholders

The stakeholder for my project is myself, as I am hoping to start a computer repair business and thought this would be a great tool for such a business. The requirements of my project are features that will allow customers to easily submit an enquiry to the business and for the business employees to easily review the enquiries and contact the customer about the enquiry. Then to be able to easily manage the job and keep track of progress. And to also quickly make invoices and archive the completed jobs details.

My project will accommodate a solution for all these needs. Customer enquiries should be much more convenient and easier through a form on a website, then the business employees would be able to open the program and look at the enquiries and respond to the customer with ease about their enquiry as their contact details will be attached to the enquiry. Then they will be able to manage jobs taken on and keep track of progress through the programs GUI and once finished to generate a basic invoice in MS Word and archive the data of the job with the click of a button.

# 3.1.3 Research The Problem

During my research I found a product with a similar function to my program, the software is called WorkflowMAX, the program lets you keep track of jobs, they are displayed in a table similarly to how I would present mine. It allocates a Job number to each job, holds the details of the client, a name for the job, and the progress of the job (*Figure 1*). This is similar to how I will lay out my database table. The difference between this program and my project, is that I am including a website to retrieve enquiries from customers which will also be processed through my program.

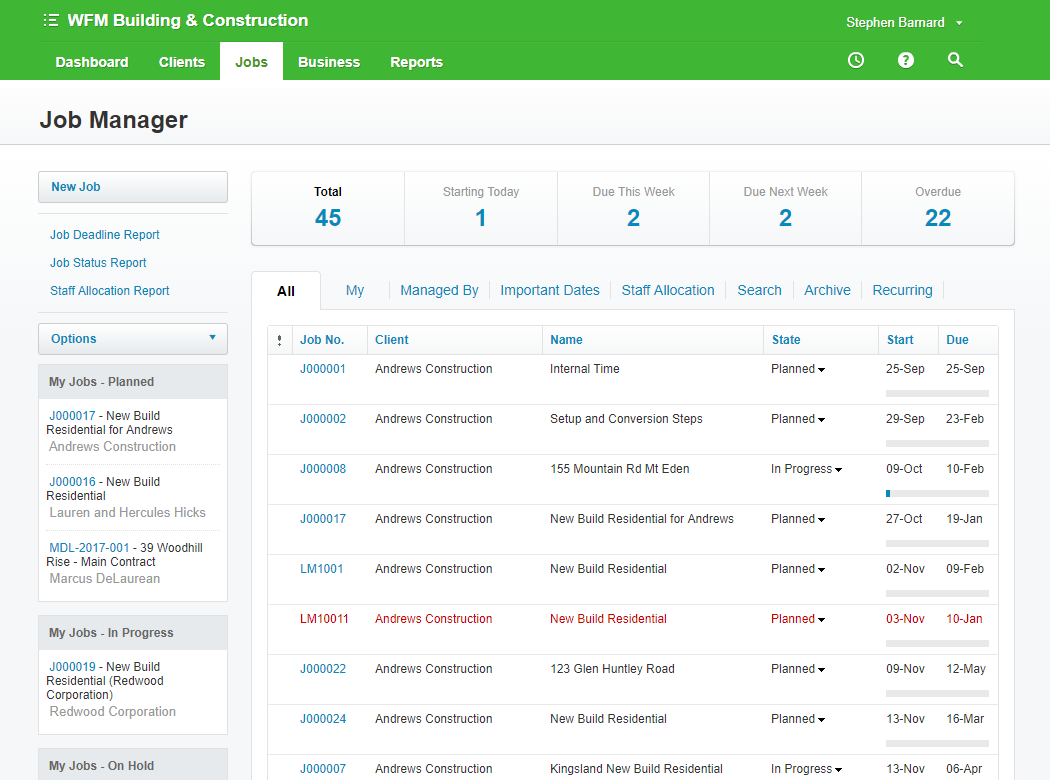


Figure 1 - WorkflowMAX Job Management Software

This program includes almost everything that it could, from custom headings to creating quotes. However, my solution will not be as detailed and as modular as this may be too complex for the time limit and would be unnecessary for my needs. I will not include features such as a customisable GUI or customisable invoice formats, these features would take too long to implement and would not benefit the needs of the project. But I would expect to be able to implement the core features such as receiving enquiries and viewing the enquiries and jobs and generating a simple invoice for completed jobs. One feature I would like to add if I have enough time after finishing the key features would be a log in for the website for customers to track the progress of their job, a simple solution for this could be done with PHP but would be hard to make secure and keep customers data safe.

Another example of a solution to this problem is a Kanban board (*Figure 2*), Kanban boards are fairly simple, they are just different lists which can include items, these items can be moved between the lists. These items in my case would be jobs and their information and the lists would be enquiries, jobs, and archive. These items can have tags and priorities.



Figure 2 - Kanban Board

This solution is very popular and used by a variety of companies and job roles. One of the most popular Kanban tools is Jira (*Figure 3*), it is used widely by large companies, it allows customers to submit ‘tasks’ or ‘tickets’ which can be seen by moderators to deal with, this is ideal for a IT department in a business as they can easily receive support tickets which can provide details of problems and details of the user submitting the ticket so that it can be dealt with as quickly as possible.

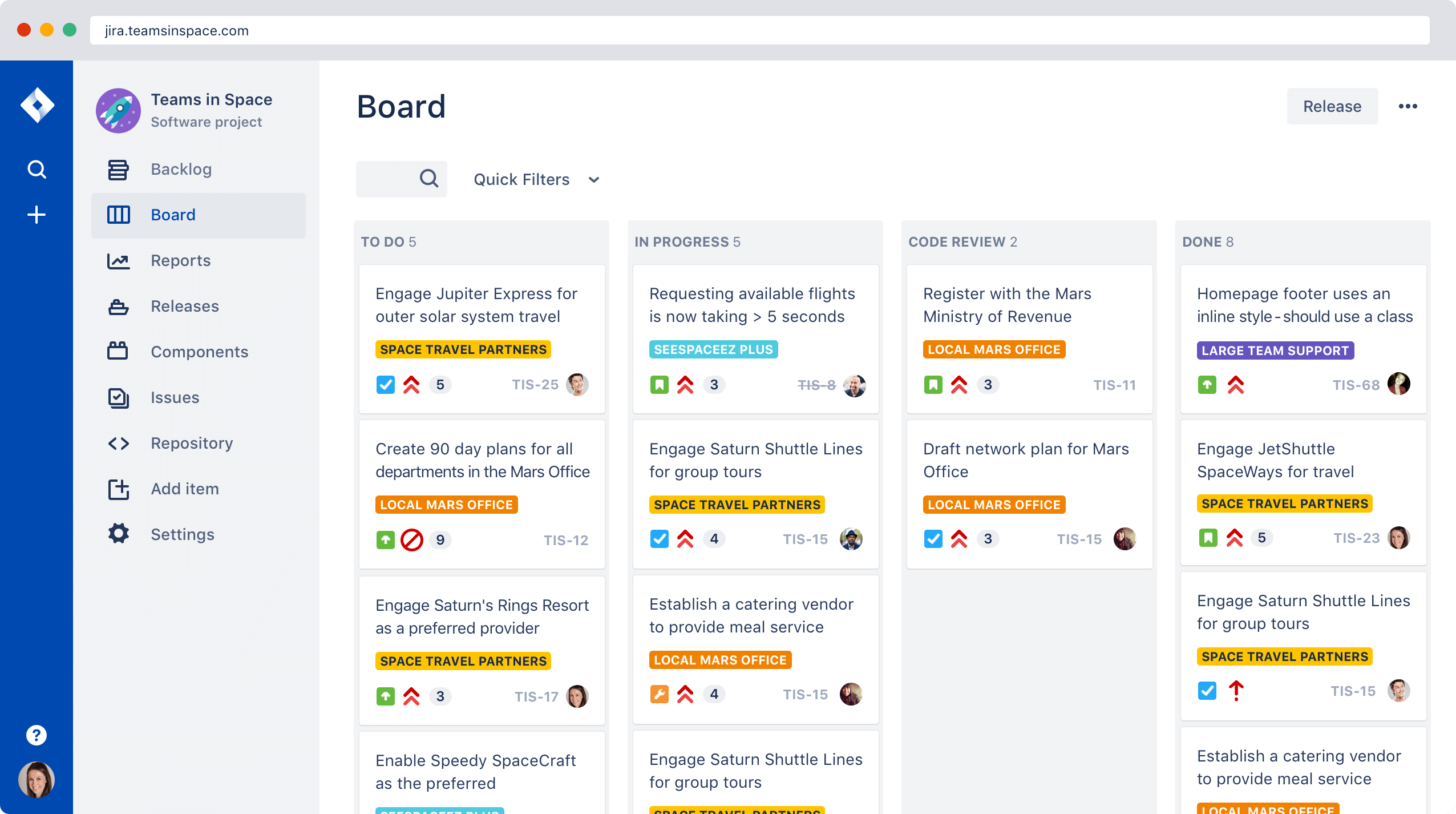


Figure 3 - Jira Kanban Board

However, the downside of Jira is that it is a website hosted by Atlassian, this means that the if the system goes down, you would have to rely on Atlassian to fix it and get it back up and running. Also they will have traffic coming from each user of Jira, which means the speed of response time on the website is not solely influenced by your business. Where as using my solution, a server hosted by the business, the owner has full control over maintenance and backing up of the data. Also if the webserver goes down the database can still be accessed through the program as they do not have to be stored on the server.

# 3.1.4 Specify The Proposed Solution

## System Requirements

* The system requirements are limited by the system that development is taking place on however this is not a problem as this program should not be intensive on either the CPU or GPU and will not require large amounts of RAM.
* The specifications of the lowest spec system development will take place on include a quad-core Intel Core i5-6400 CPU with a clock speed of 2.70GHz, this CPU has integrated graphics (Intel HD Graphics 530) it is allocated 4GB of RAM to use and uses DirectX 12. This is completely sufficient to run a simple graphical user interface. The system has 8GB of 2133MHz DDR4 RAM, this is also enough as it will not have a large amount of objects or variables.

## Success Criteria

1. The webserver should allow anyone with internet access (and no certificate or website restrictions) to enter data into a form on the website.
2. The data entered into the form should go straight into the database located on the server.
3. The program should allow the user to locate a database and be able to read and modify the data in the database file if the table names are correct.
4. The enquiry data should be validated on the webserver before being allowed to go into the database.
5. The website should be compatible with most browsers including mobile versions. (HTML 5)
6. The program should allow the user to move the job data to the next table (stage of progress).
7. When the job has been completed and is the requested to be moved into the archive table, the program should output a simple MS Word formatted invoice with a date, address, name, price with job details of the job.
8. The program should allow the user to draft an email to the customer using their details stored in the database.
9. The program interface should be simple and require little experience or skill to use.
10. My solution will be fully functional by…