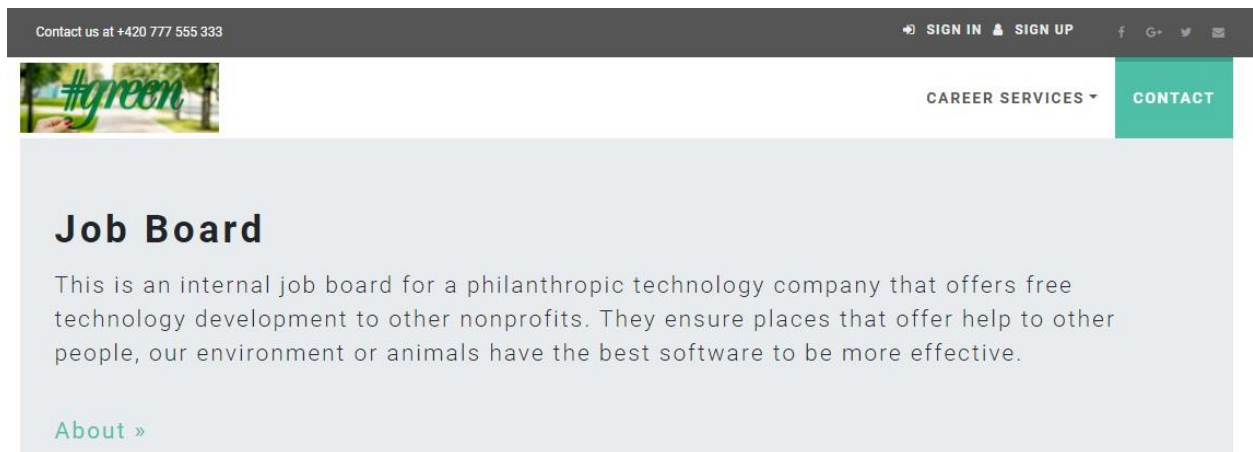


The Job Board

An internal job board for a philanthropic technology company

Presentation Date: December 9, 2020



Ian Whitehill

Full-Stack .NET Web Developer

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Dear Invested Reader,

Thank you for taking the time to read over this documentation for my final project at Centriq Training. When making the decision to tackle this 2-tier application I was also searching for a job as a Web Developer. My search has led me to spending a significant amount of time looking over job boards and company websites, most of which I found easy to use and navigate. I wanted to take on the challenge of building a solution that catches an applicant's attention and increases their interest in working for a company. I set out to create a job board that inspires users to start a new career they are passionate about in addition to the goal of earning a paycheck.

This website is meant to be an internal job board that lets current employees apply for their dream job at their favorite company. I tried to use my new knowledge of the SOLID and DRY principals when coding. I also used a Kanban board to help me keep track of my progress. This was the first time I was able to program one application to completion with full focus and not have to divide my time between multiple projects or assignments. I really enjoyed that aspect of this process. It helped me to see how the single pieces of functionality tied together and view the program overall. It increased my practical understanding of the internal links between ASP.NET, MVC, and SQL.

The one thing I struggled with most over the last few weeks was ensuring users permissions isolated appropriate data views. I did not want to create supported views for each role, so I pushed my understand of LINQ by using both lambda and keyword syntax. There are code snippets below demonstrating how I overcame this roadblock in the applications controller. I was able to work through most of the complications on my own by utilizing my work on other projects. At time when I was stuck, I used resources like searching stack overflow or asking my instructor and fellow students for help. In return, I had opportunities to assist classmates with their projects, focusing mainly on CSS and middle tier functionality.

Thank you for your time,

Ian Whitehill

About the Author

While not a Kansas City native, I have lived here most of my life and enjoy everything from barbecue to rooting for the Chiefs. Living in a city with so much life and excitement presents the opportunity to grow and build. I find this applies directly to my efforts to build a career within the development world. I started the Full Stack Developer program at Centriq in May and am excited to hit the ground running after completion in December.

I was previously in the Military where I worked with lots of different technologies both state side and overseas. During a deployment I was asked to help maintain and develop a process for issuing IDs to local nationals and third country nationals to properly identify and control access to secure areas. We mainly did this through a local secured network and a few Excel spread sheets. This was the first time I saw how powerful technology can be in today's world and realized I had a strong interest in it.

During my 5 years with Union Pacific Railroad, I had to learn a lot of technical information in a short time. There were weekly updates to rules, standard operating procedures, and guidelines that I was required to stay current with and commit to functional knowledge. Due to the demands of the job, there is high attrition rate for train conductors. My 2014 hiring class of 29 students resulted in 6 existing employees, including myself, by the end of 2019. I was able to maintain efficiency by being disciplined and staying on top of changes.

Most recently I worked for a security company doing a lot of networking and managing different technologies. This experience really several IT professionals and tried different focuses like system admin and cyber security. After watching my first YouTube video on how to write Python 101, I fell in love with web development.

Project Requirements

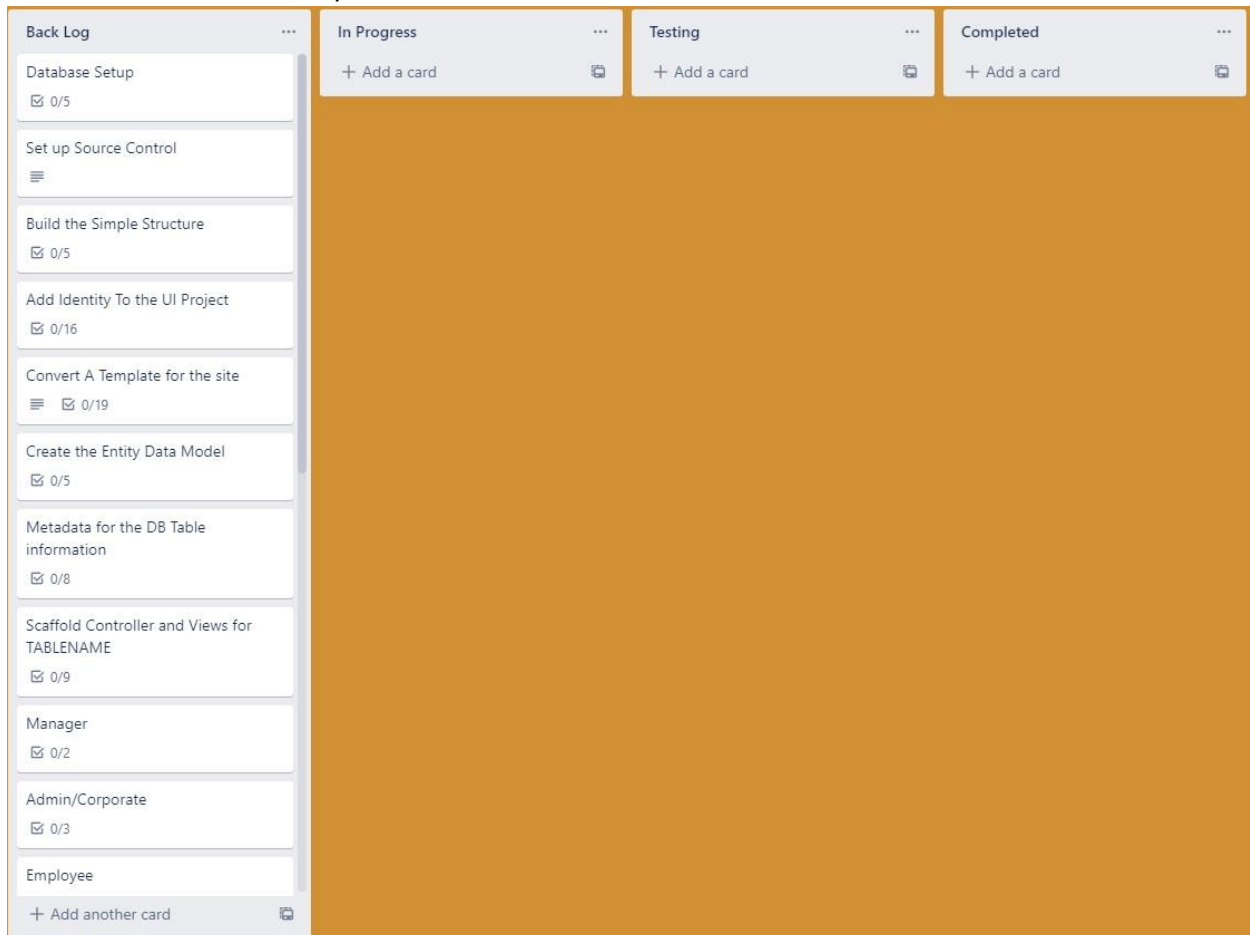
I was assigned a project to build a 2 tier MVC application in the .Net framework using Microsoft SQL Server Management Studio and Microsoft Visual Studio. The focus of this application was to share job openings easily between multiple locations and different user types. The project required functionality by user type including:

1. Admins with full CRUD functionality on all areas of the application
2. Managers to be limited to the ability to view, edit, and create specific data to their location
3. Employees to have CRUD functionality on their personal info, resume upload option, and single click apply options for open positions

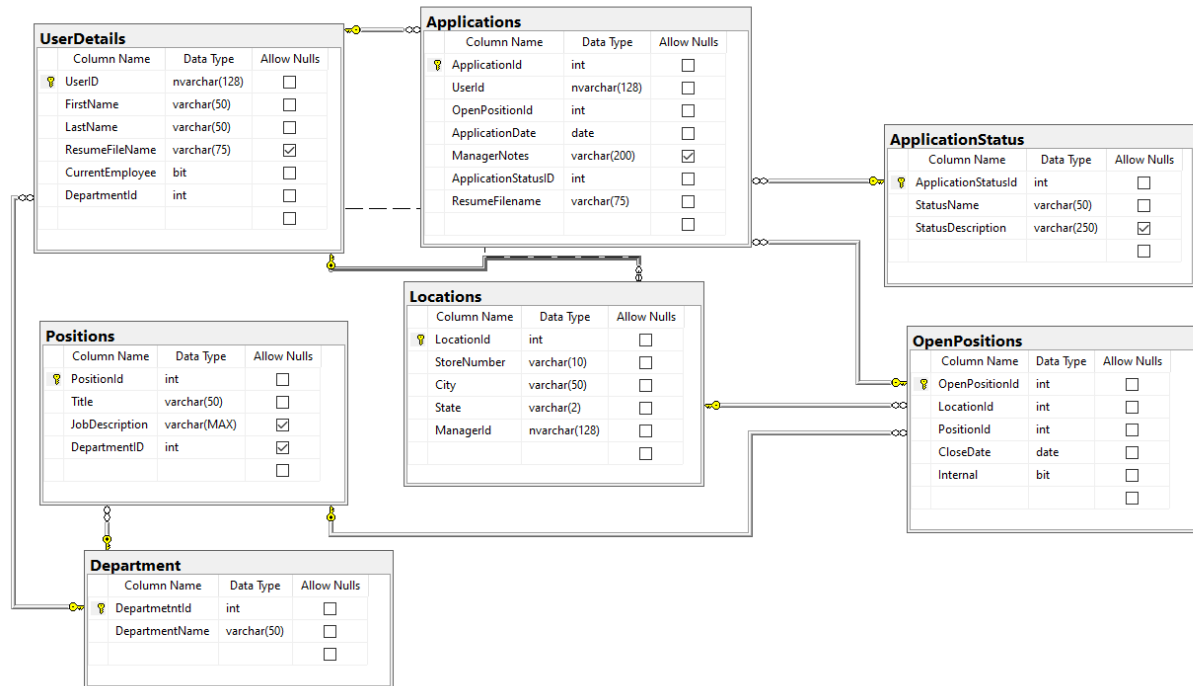
Along with permissions and actions by role, multiple users needed to be allowed for each permission level and given access to the application. The application also needed to be mobile friendly and geared toward internal job postings and applicants.

Project

I started with requirements gathering by reading the brief and asking the instructor for any clarification on uncertain areas of the project. Then, I broke down the requirements into manageable tasks and added them to my Trello board.



Next, I built my database in SQL and ensured my schema would be able to handle all the data required for the application as well as possible data required for version 1.2 of the application. I also populated all the tables with test data.



After finishing the database, I created a blank solution and linked it to my git repository (<https://github.com/ianwhitehill/JobBoard>). My next step was to build out a base UI layer with authentication and link it to my local database. I then worked to find a template that I liked, would work well for the application, and had more current versions of bootstrap and jQuery. I added a data project to my solution and linked it to my database. Next, I added metadata and made a custom property for user details name.

```
[MetadataType(typeof(UserDetailMetadata))]
public partial class UserDetail
{
    [Display(Name = "Name")]
    public string userFullname
    {
        get { return $"{FirstName} {LastName}"; }
    }
}
```

Following that step, I scaffolded out views and controllers for the tables and added the functionality for file upload. I used Linq syntax in the Application Controller to ensure Employees could only view applications they had submitted, Managers could view both their own submitted applications and applications submitted to open positions at their locations, and Admins could view all submitted applications.

Index Get

```
// GET: Applications
public ActionResult Index()
{
    //default to let users is only thier applications
    string userId = User.Identity.GetUserId();
    var applications = db.Applications.Include(a => a.ApplicationStatu).Include(a => a.OpenPosition).Include(a => a.UserDetail).Where(a => a.UserId ==
        userId);

    //admin can see all summited application
    if (User.IsInRole("Admin"))
    {
        applications = db.Applications.Include(a => a.ApplicationStatu).Include(a => a.OpenPosition).Include(a => a.UserDetail);
        return View(applications.ToList());
    }

    //manager can see thier apps and apps summited to there location
    if (User.IsInRole("Manager"))
    {
        applications = db.Applications.Include(a => a.ApplicationStatu).Include(a => a.OpenPosition).Include(a => a.UserDetail).Where(a =>
            a.OpenPosition.Location.ManagerId == userId || a.UserId == userId);
        return View(applications.ToList());
    }

    return View(applications.ToList());
}
```

Summited Application Get - I created this view to pass an open position id and only get applications related to that position

```
public ActionResult SummitedApplications(int? id)
{
    //defaulted to user seeing there application
    string userId = User.Identity.GetUserId();
    var applications = db.Applications.Include(a => a.ApplicationStatu).Include(a => a.OpenPosition).Include(a =>
        a.UserDetail).Where(a => a.OpenPosition.Location.ManagerId == userId);

    //check if a id for openpostions was passed back
    if (id == null)
    {
        if (User.IsInRole("Admin"))
        {
            applications = db.Applications.Include(a => a.ApplicationStatu).Include(a => a.OpenPosition).Include(a =>
                a.UserDetail);
            return View(applications.ToList());
        }
    }

    //if openpostions id was passed back only give the summited application back to the view
    else
    {
        if (User.IsInRole("Admin"))
        {
            applications = db.Applications.Include(a => a.ApplicationStatu).Include(a => a.OpenPosition).Include(a =>
                a.UserDetail).Where(a => a.OpenPositionId == id);
            return View(applications.ToList());
        }

        //managers can only see application for thier location
        if (User.IsInRole("Manager"))
        {
            applications = db.Applications.Include(a => a.ApplicationStatu).Include(a => a.OpenPosition).Include(a =>
                a.UserDetail).Where(a => a.OpenPosition.Location.ManagerId == userId && a.OpenPositionId == id);
            return View(applications.ToList());
        }
    }

    return View(applications.ToList());
}
```

I continued my work by adding filtering of open positions by location.

```
private JobBoardEntities db = new JobBoardEntities();

// GET: OpenPositions
public ActionResult Index(string openFiltered)
{
    ViewBag.OpenFiltered = new SelectList(db.OpenPositions.Select(x => x.Location.City).Distinct());
    var openPositions = db.OpenPositions.Include(o => o.Location).Include(o => o.Position);
    if (string.IsNullOrEmpty(openFiltered))
    {
        return View(openPositions.ToList());
    }
    else
    {
        var filterOpenPositions = (from o in openPositions where o.Location.City.ToLower().Contains(openFiltered.ToLower()) select o).ToList();
        return View(filterOpenPositions);
    }
}
```

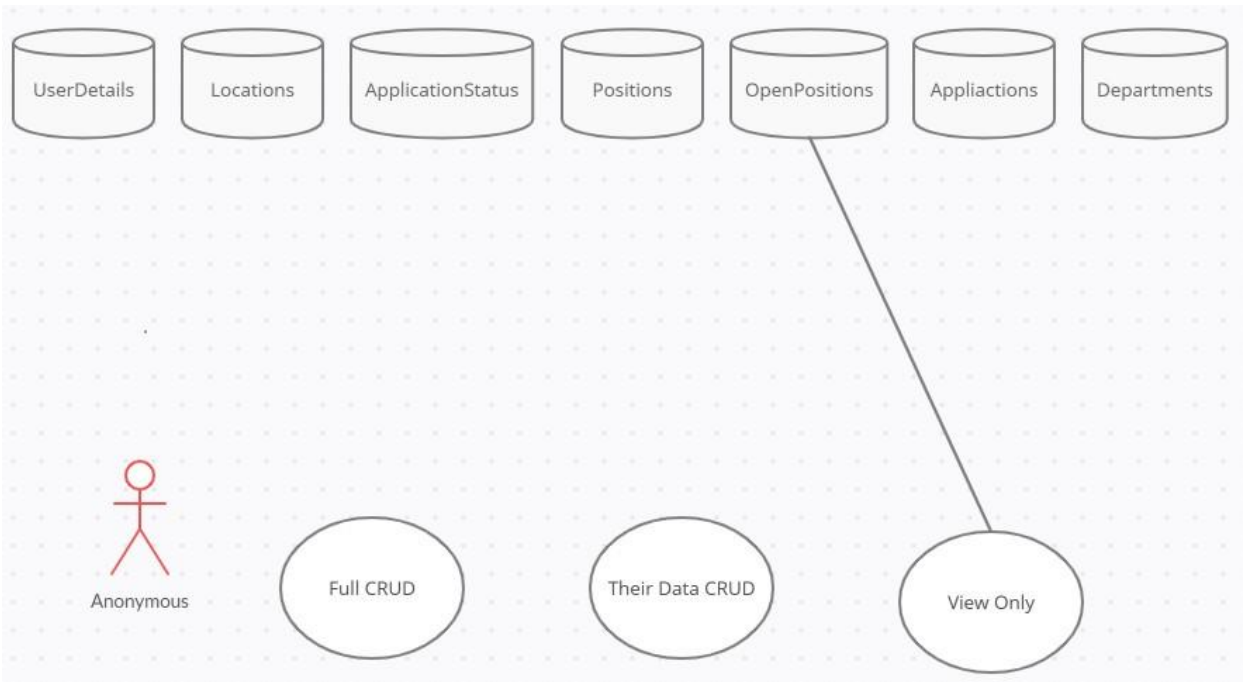
Open Postions

Filter by Location

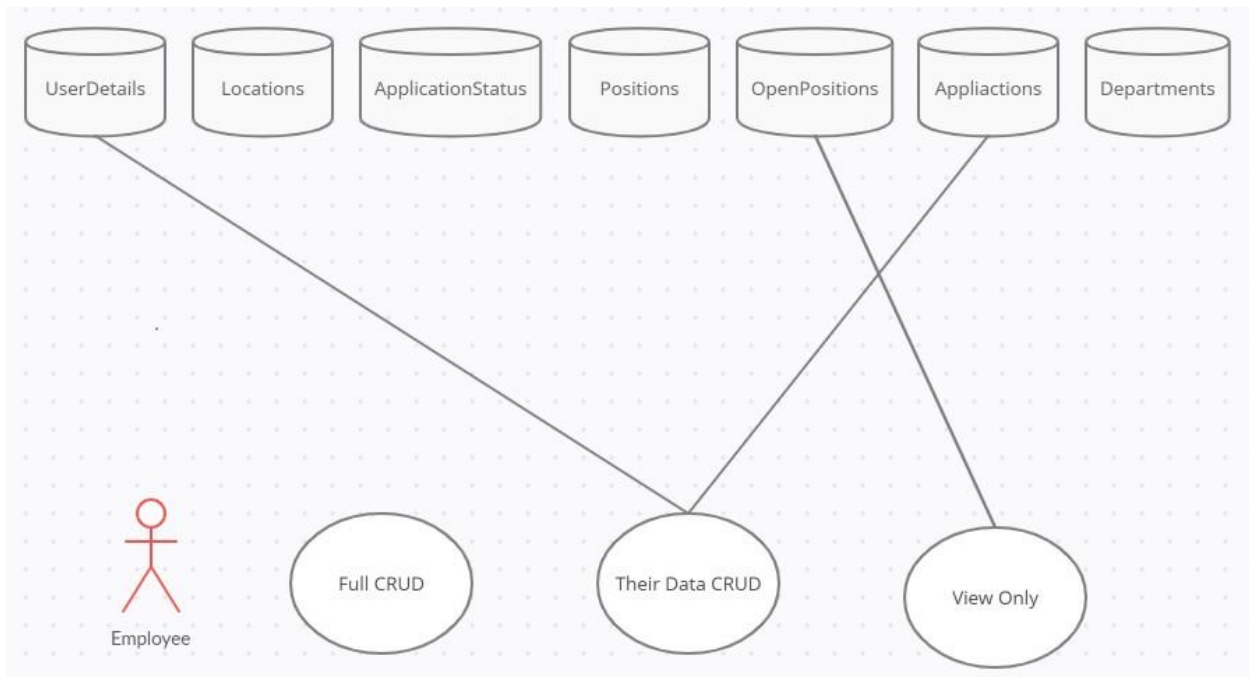
GO Overland Park			
Title	Department	City	Close Date
Devops Manager	Operations	Overland Park	12/23/2020
.Net Web Developer	IT	Overland Park	4/1/2021

Another requirement of the project was to create Use Case Diagrams. I've included these below:

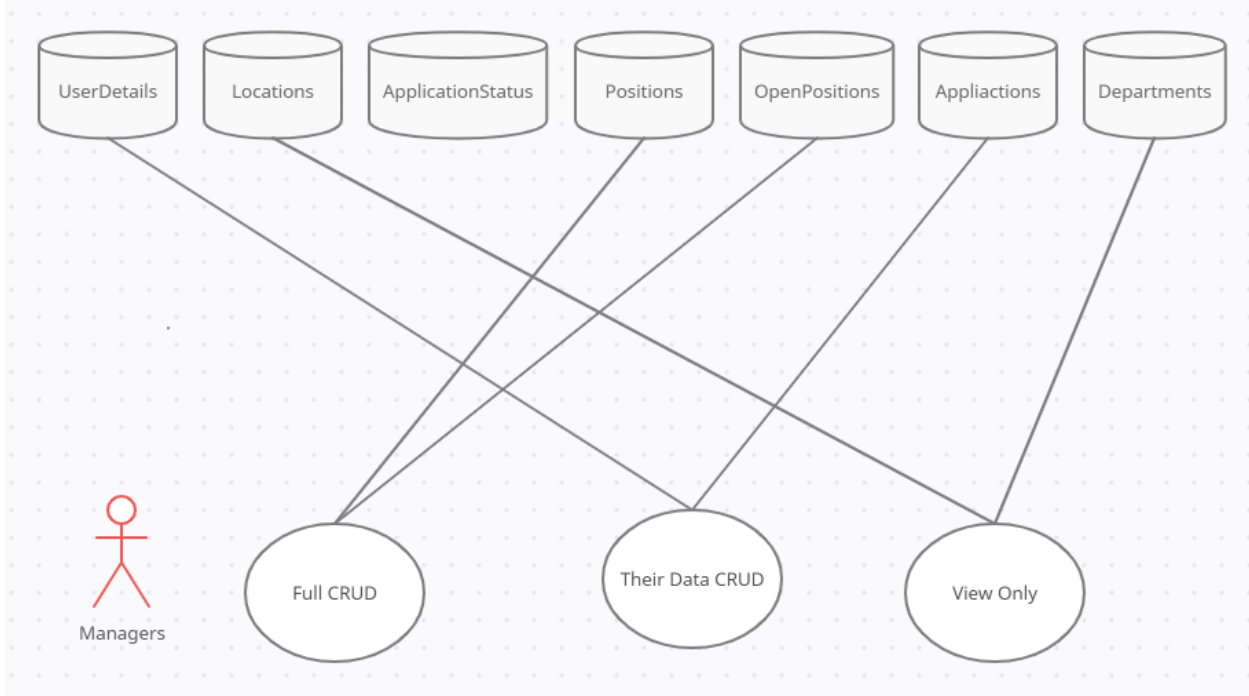
Anonymous Users



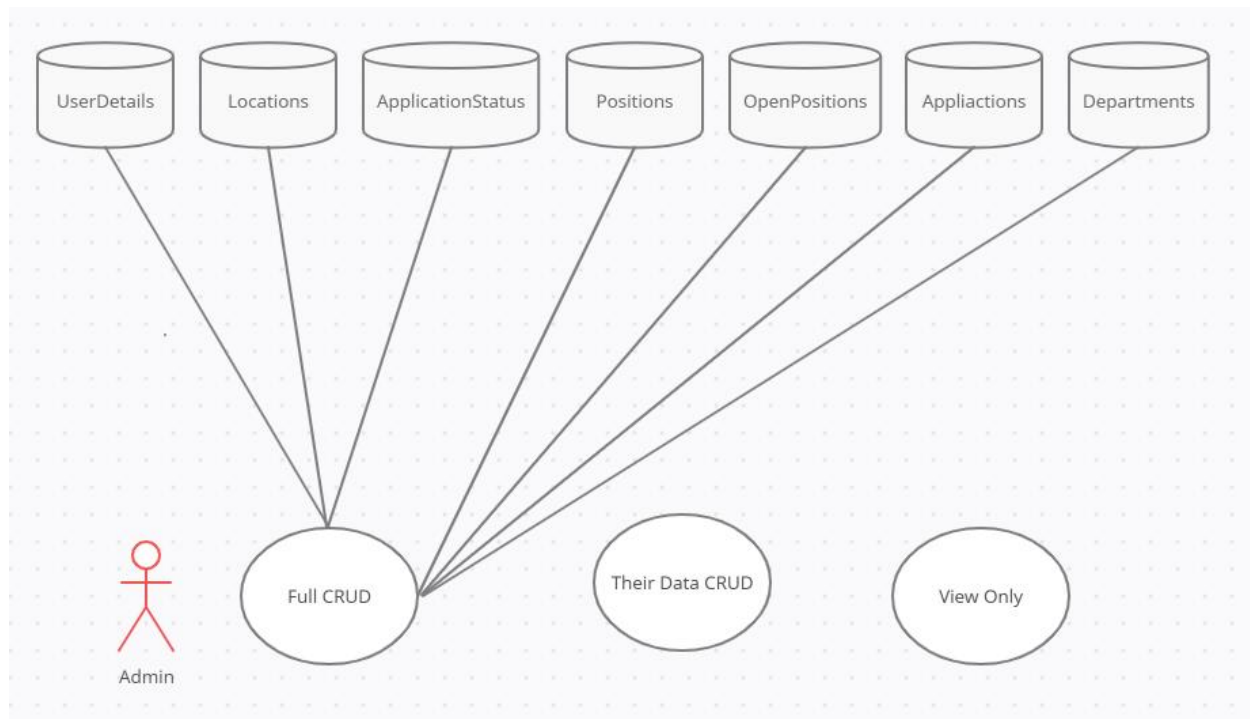
Employees



Managers



Admin



Version 1.2

- Allow non-employees to apply to external positions
- Add more filtering to open positions and submit applications
- Create an API
- Build iOS and Android apps
- Create a Department Manager role that can manage submitted applications at their location and department level

In conclusion, thank you for your interest in my work. I hope to get your feedback on this project and documentation. In addition to constructive criticism, I welcome to opportunity to network and build connections. Please email me, connect with me on LinkedIn, or give me a call.

IAN WHITEHILL

816-799-1588 / whitehill.ian@outlook.com / ianwhitehill.com / 

FULL-STACK DEVELOPER

QUALIFICATIONS

- Solid foundational knowledge of designing and developing full-stack web applications using .NET framework.
- Great problem solver, adaptable, and fast learner from 13 years of civilian and military work experience.
- Independent individual with strong teamwork mentality and ability to coordinate, self-motivated and organized.
- Experienced with Git, version control and Agile methodology.

TECHNICAL SKILLS

Front End: HTML5, JavaScript, jQuery, jQueryUI, CSS3, Responsive/Mobile Web Development, Bootstrap, ReactJS

Middle Tier: Visual Studio, C#.NET, ASP.NET, LINQ, MVC, EF

Back End: ADO.NET, SQL, SQL Server, SSMSE jQuery

INDEPENDENT DEVELOPMENT PROJECTS

- **Personal Site:** www.ianwhitehill.com
- **StoreFront:** Created a secure application for managing product data. Application is built to simulate an online store front with a shopping cart. Administrators have the ability to manage product, category and vendor data.
- **S.A.T. Scheduling Administration Tool:** Created a secure application for managing product data. Application is built to simulate an online class scheduling system. Administrators will have the ability to manage students, courses, scheduled classes, and enrollments.
- **Final Project:** Created a secure data-driven ASP.NET MVC application from design through deployment for managing the tracking and organization of hardware and software within a company. Administrators have the ability to manage employee, department data and all details relating to assigned hardware and software.

TECHNICAL TRAINING

FULL-STACK WEB DEVELOPER PROGRAM at CENTRIQ TRAINING

Kansas City, MO | May 2020 – December 2020

Core Competencies:

- MVC Framework
- Trouble Shooting & Debugging
- Source Control
- Agile/Scrum (Created Team Project)
- Website Deployment
- Pair Programming
- Code Review
- Professionalism, Teamwork, Problem Solving & Effective Communication

PROFESSIONAL EXPERIENCE

TECHNICIAN / IT SUPPORT at WATCHMEN SECURITY

Raytown, MO | February 2020 – October 2020

- Installed, maintained, and troubleshot security and fire alarm systems.
- Managed and trained other technicians on both commercial and residential fire and security systems.
- Communicated with customers and contractors to ensure jobs were complete before deadlines.

- Oversaw software and devices used by coworkers and new onboarding employees.

CONDUCTOR, REMOTE LOCOMOTIVE ENGINEER, HOSTLER, FORMAN at UNION PACIFIC RAILROAD

Kansas City, MO | December 2014 – February 2020

- Implemented and upheld federal and company safety and compliance standards.
- Reviewed and completed jobs from the yardmaster/managers on duty and filed the appropriate paperwork.
- Coordinated with customers and train crews for accuracy in deliveries and placement of train cars.

ASSEMBLER at HARLEY-DAVIDSON

Kansas City, MO | January 2017 – March 2017

- Kept equipment operational by completing preventive maintenance requirements; followed manufacturer's instructions; troubleshoot malfunctions; called for repairs.
- Maintained safe and clean working environment by complying with procedures, rules, and regulations.
- Conserved resources by using equipment and supplies as needed to accomplish job results.
- Documented actions by completing production and quality forms.
- Maintained supplies inventory by checking stock to determine inventory level; anticipating needed supplies; placing and expediting orders for supplies; verifying receipt of supplies.

ASSEMBLER at HAMMAR

Lee's Summit, MO | December 2015 – October 2016

- Prepared work to be accomplished by studying assembly instructions, blueprint specifications, and parts lists gathering parts, subassemblies, tools, and materials.
- Positioned parts and subassemblies by using templates or reading measurements.
- Assembled components by examining connections for correct fit fastening parts and subassemblies.
- Verified specifications by measuring completed component.

SECURITY OFFICER / SELF-DEFENSE AND TASER INSTRUCTOR at SAINT LUKE'S HOSPITAL

Lee's Summit, MO | March 2012 – December 2014

- Protected and assisted hospital staff, patients, and visitors with regular and specially requested tasks.
- Managed, mentored, and evaluated new security officers while maintaining up-to-date training for security officers.
- Communicated with hospital administration and direct supervisors in both formal and informal meetings.
- Facilitated and contributed to staff meetings and the implementation of changes in current security procedures.

MILITARY POLICE at MISSOURI ARMY NATIONAL GUARD

Harrisonville, MO | November 2007 – November 2013

- Served in multiple stateside and overseas operations as a Military Police officer such as OIF and OEF.
- Aided in the rebuilding of communities on missions during Hurricane Gustav.
- Performed the duties of a Military Police officer as instructed in both civilian and combat environments.
- Conducted several state side relief campaigns during and after natural disasters.