THE

ANIGRAMS

SUPPORT APP

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My Story

Growing up, I always loved playing my brother's videogames, but I never imagined I would ever make my own. And yet, in 2009, bored and frustrated with the lack of story-driven adventure games for girls, I began work on my very own computer game.

The only code I had ever worked with was formatting forum posts, so my first attempt was a text adventure in a forum thread, laid out with images and "choices" that lead to different branches of the story, formatted as links to different posts in the thread. Luckily, though, I found Ren'py, a Python-based program for making "choose your own adventure" games, and spent the next year learning how to program and build a computer game. I released my first game, "Memoirs of an Angel," in 2010, and thus **Anigrams Productions** was born.

At the time, I was in the pre-law program at Drury University in Springfield, MO, but discovering my love for the programming aspect of game design led me to switch my major to Computer Information Systems. This proved to be a smart and much-needed change – my grades improved drastically, and I graduated with honors a semester early in December 2012, earning my Bachelor's in Business Administration with a focus on information systems.

During my senior year, I held a brief internship at Meyer Accounting & Tax, LLC, where I applied the knowledge I'd learned in school to build a small database to keep track of customer information and design a new company website based on the client's requirements. After graduation, I went to work at RGIS as an inventory specialist. I joined the esteemed Walgreens inventory team after six months with the company, and was recently given additional duties as a training supervisor, training new hires and teaching classes on improving efficiency and 10-key typing skills.

However, after nearly two years at RGIS, I felt as if I had lost my way. My passion was programming, not counting inventory, and though I was still working on a few small game projects on the side, I missed the excitement and puzzle solving of development. That's when I heard about Centriq Training. I knew it was a risk, but when I thought about what I really wanted to do with my life, the answer was clear: I had to go and give computer programming another shot. And I'm so glad I did!

Project Summary

The **Anigrams Support** web application was designed to keep track of errors that users may find while using the games and applications built by or related to Anigrams Productions. It utilizes ASP.NET MVC 5 architecture and a data access layer using Entity Framework to manage and persist data to a SQL Server database.

There are two main components to the project: **user membership** and **trouble ticket tracking**. Users can log in to submit issues, post comments, send messages to other users, and edit their profile and preferences. Developers (techs) from Anigrams Productions can then review, edit, and resolve issues that users submit, providing detailed documentation for the errors and how they were fixed. This documentation of errors and their fixes is meant to aid in faster error resolution in the future.
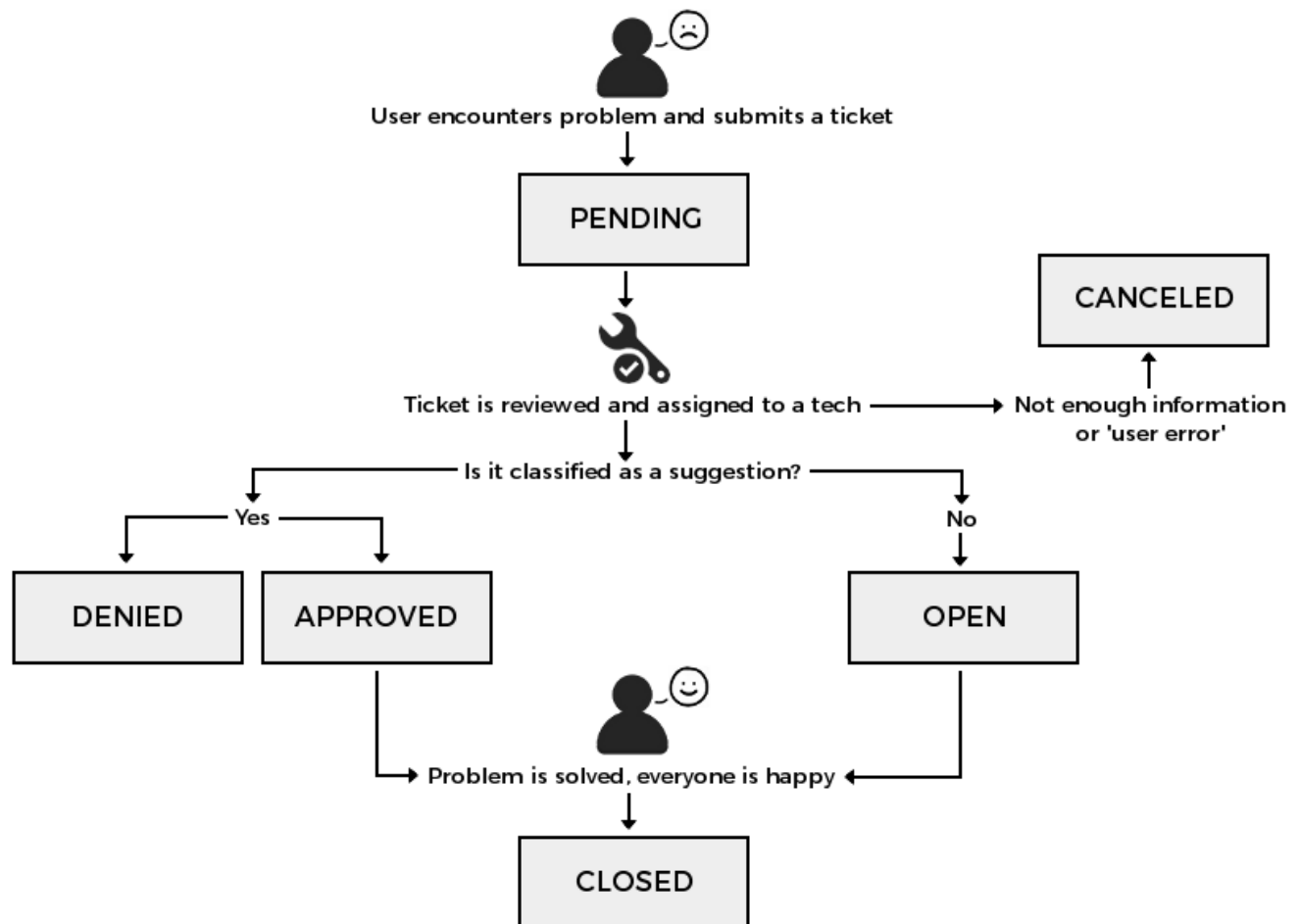

Figure 1.1 "The Ticket Life Cycle", showing how a trouble ticket moves through each of the statuses.

Requirements

Because **Anigrams Support** was designed to be an external web application as opposed to an internal application for a company, many of the base requirements were tweaked to fit with the goal of my particular project, while still meeting the requirements for basic functionality.

Departments	Employees	Tickets	General
• Index view that shows all departments • CRUD functionality only available to Admin users • Soft delete	• Index view that shows only active employees • Filter between active and inactive employees • CRUD functionality only available to Admin users • Soft delete	• Index view where you can toggle between statuses • User can only submit a ticket if they're logged in • Only fields a non-admin or –tech user can fill in are subject and description • Admin or Tech can access edit functionality • New tickets automatically set as pending, with null closed date and null tech assigned	• jQuery DatePicker controls used for any date not entered automatically • All non-PK ID selections made with dropdown lists • Notes and description fields converted to multi-line textboxes • All required fields validated

Figure 2.1 Summary of base requirements for the project.

Roles & Permissions

Anonymous	User	Internal User	Tech	Admin
Can only view a "Welcome" message, **Help**, and **Contact**. Cannot see or submit tickets, post comments, or send messages.	Can view the **Dashboard**, **Projects**, **Tickets**, and **Users**, but can only see tickets they've submitted. Can edit their own profile & settings.	Clients and Testers have the same capabilities as Users, but can **see all tickets** that have been submitted.	Developers have the same capabilities as Internal Users, but can also **edit** the classification, status, and assigned tech for tickets.	Access to special **Admin menu** and can **add, edit, or soft delete** any entity on the site, including projects, tickets, users, or categories.

Figure 2.2 Summary of permissions based on role.

Data Structure

Before starting work on the application itself, I designed and built the data structure for the project in SQL Server Management Studio (SSMS). In addition to the required tables for **Departments** (Projects), **Employees** (Users), **Tickets**, **Ticket Statuses**, and **Tech Notes** (Comments), I added several additional tables. These provide extra information (such as the lookup tables for **Ticket Classifications** and **Project Categories**) and functionality (like the tables added to store **User Notifications**, **Contacts**, and **Messages**).
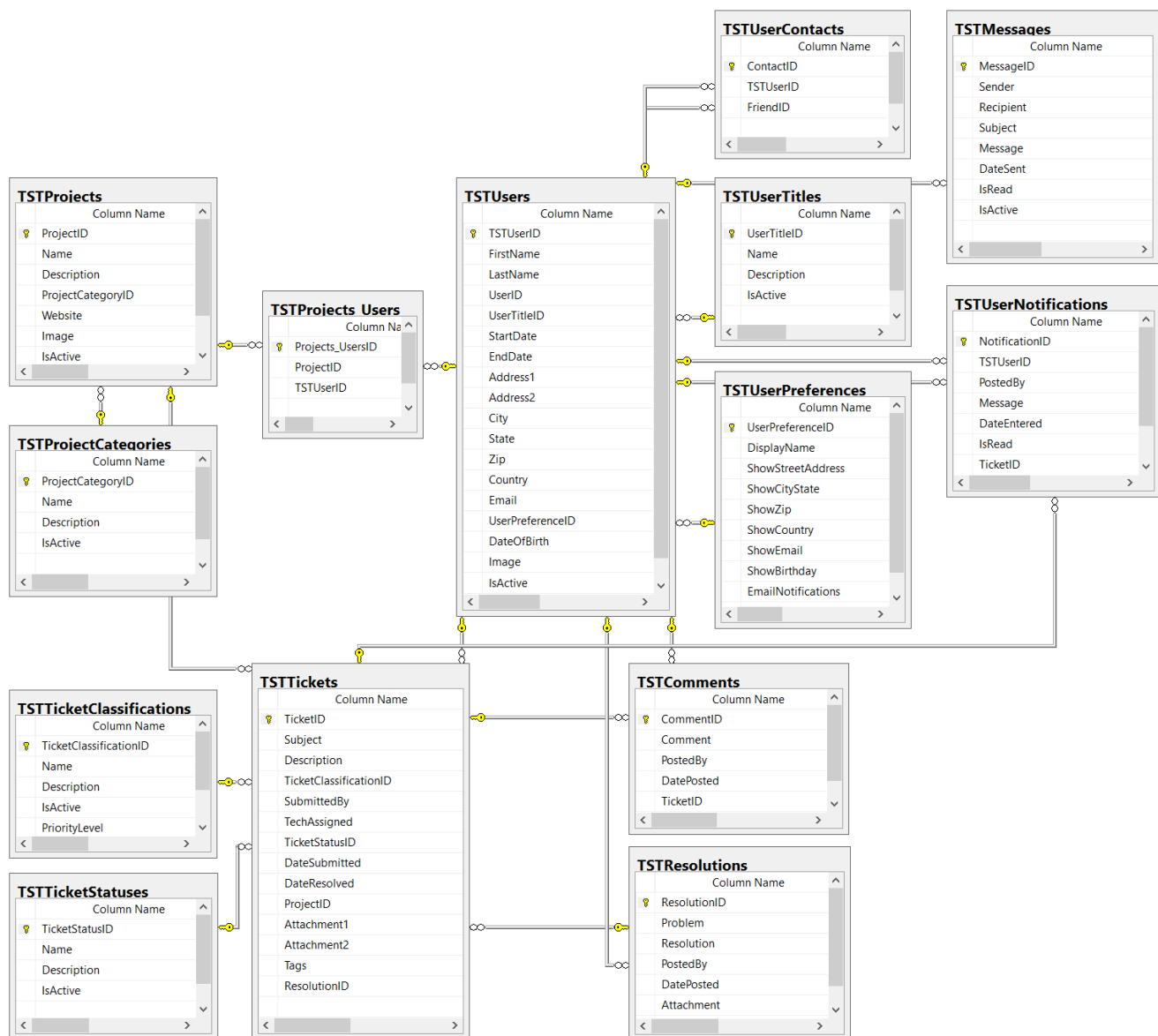

Figure 2.3 ER Diagram for the **TST** database, which is used to store all data for Anigrams Support.

Additional Content & Features

Due to the user focus of **Anigrams Support**, several additional features were included in order to enhance the user experience. These include:
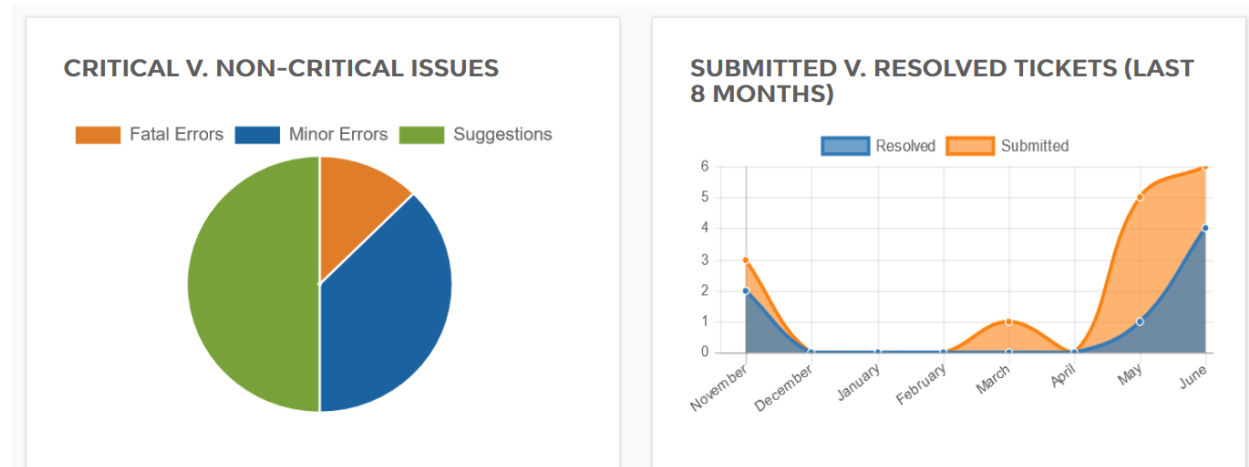
Dashboard

The home page, or "dashboard," summarizes information relevant to the logged in user, featuring modules for pending and open tickets they've submitted, pending and open tickets they're assigned to (if the user is a Tech or Admin), and pending and open tickets for any projects they are a part of.

SUBMITTED BY ME

No.	Subject	Project	Status
1007	Site Redesign	Meyer Accounting	Open
1005	Send shipping info to PayPal	White Sun Crafts	Approved

ASSIGNED TO ME

No.	Subject	Project	Status
1001	Can't use apostrophe!	Character Creator	Pending
1004	Pictures that show size...	White Sun Crafts	Pending
1003	Policies Page	White Sun Crafts	Pending
1007	Site Redesign	Meyer Accounting	Open
1005	Send shipping info to PayPal	White Sun Crafts	Approved
1016	Need to change picture	White Sun Crafts	Approved

For the benefit of "upper management," the dashboard also features graphs summarizing data for quality assurance analysis. One can tell from a glance the proportion of serious errors to minor errors, and how well the techs are keeping up with resolving the tickets that have been submitted.

CRITICAL V. NON-CRITICAL ISSUES

Fatal Errors | Minor Errors | Suggestions

SUBMITTED V. RESOLVED TICKETS (LAST 8 MONTHS)

Resolved | Submitted

User Preferences

Users can easily edit preferences and privacy settings associated with their account. Clients may want to advertise their business address or email address, while private users may not want to show any personal information at all.

Open Comments

While the comment system itself was a base requirement, I made sure that any user can post a comment to a ticket, making it a more social experience where users can exchange related information and concerns.
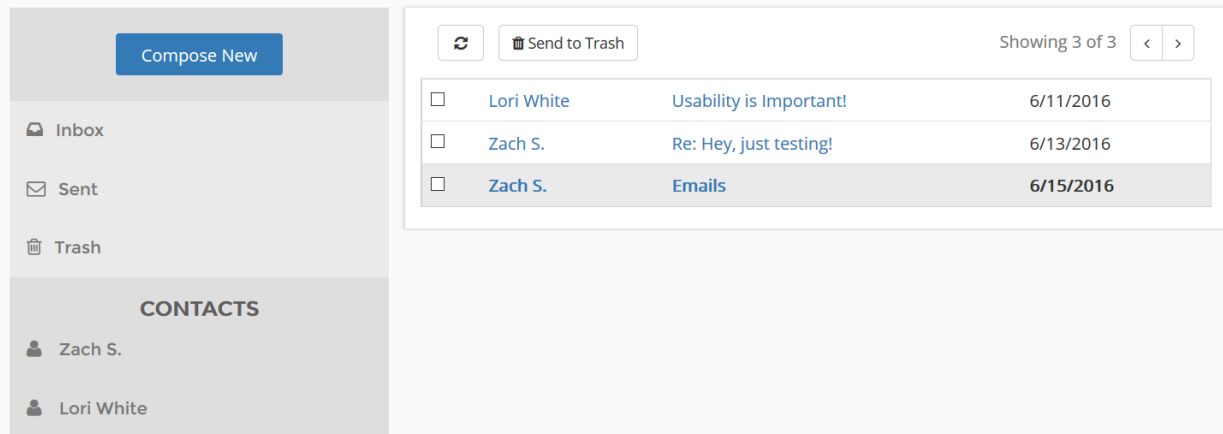
Messaging System

Users can send private messages to other users through a sort of mini-email system built right into the application. This is useful for users to communicate with each other without disclosing their personal email addresses.

Inbox

	Compose New			

Compose New

🗀 Inbox

✉ Sent

🗑 Trash

CONTACTS

👤 Zach S.

👤 Lori White

		Send to Trash		Showing 3 of 3	‹ ›
☐	Lori White	Usability is Important!		6/11/2016	
☐	Zach S.	Re: Hey, just testing!		6/13/2016	
☐	Zach S.	**Emails**		**6/15/2016**	

Users can add other users to a contact list for quick access to private messaging. The following is the code written in the Users Controller to add a contact:

```csharp
public void AddContact(int id)
{
    //get current user
    string userID = User.Identity.GetUserId();
    TSTUser user = db.TSTUsers.Where(t => t.UserID == userID).SingleOrDefault();

    //find contact to be added
    TSTUser contact = db.TSTUsers.Find(id);

    TSTUserContact newContact = new TSTUserContact()
    {
        TSTUserID = user.TSTUserID,
        FriendID = contact.TSTUserID
    };

    db.TSTUserContacts.Add(newContact);

    //create a notification
    TSTUserNotification newNotification = new TSTUserNotification()
    {
        TSTUserID = contact.TSTUserID,
        PostedBy = user.TSTUserID,
        DateEntered = DateTime.Now,
        IsRead = false,
        Message = user.FirstName + " added you as a friend",
        TicketID = null
    };

    db.TSTUserNotifications.Add(newNotification);
    db.SaveChanges();
}
```
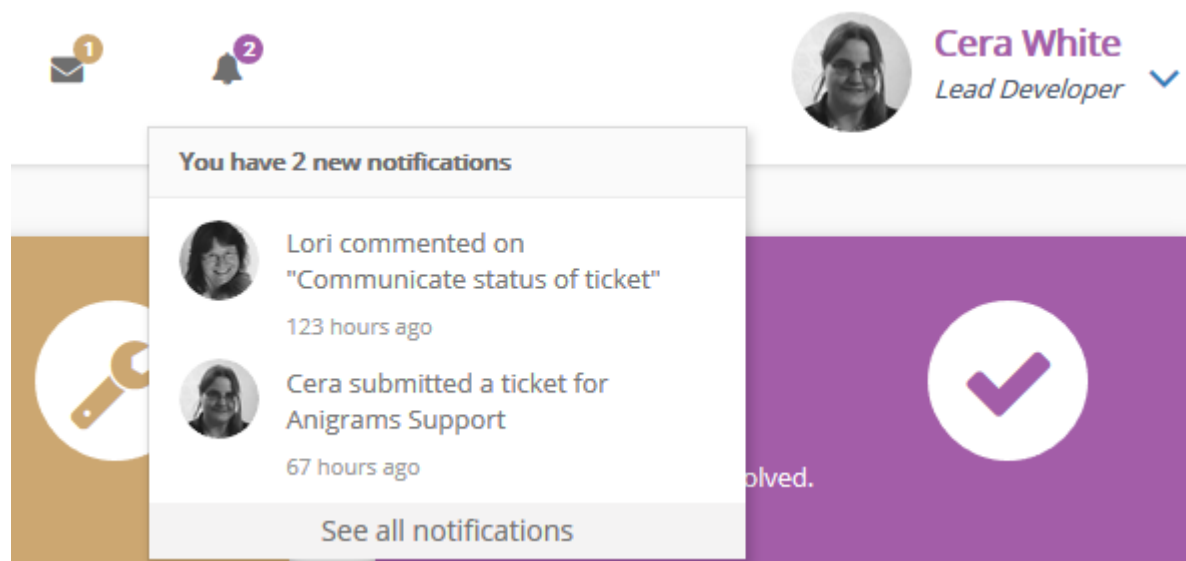
Notifications

Automatic notifications are sent to a user whenever a ticket is resolved or its status is changed, a comment is posted, or a private message is sent. Users can also opt in to email notifications in addition to the ones that pop up within the web application.

Ticket Filtering

The site includes a feature to search for tickets that match the word or phrase typed into the search bar. This function currently searches the subject, description, tags, and resolution of a ticket for the relevant criteria. You can see this in action in the code below, written into the Post for the Index action of the Tickets Controller.

```
if (!string.IsNullOrWhiteSpace(formCollection["searchCriteria"]))
{
    string criteria = formCollection["searchCriteria"].ToLower();

    tSTTickets = tSTTickets.Where(x => (x.Subject.ToLower().Contains(criteria))
    || (x.Description.ToLower().Contains(criteria)) || (x.Tags.ToLower().Contains(criteria))
    || (x.TSTResolution.Problem.ToLower().Contains(criteria)) || (x.TSTResolution.Resolution.ToLower().Contains(criteria)));

    ViewBag.Heading = "Results for \"" + criteria + "\"";
}
```

In addition, dropdown lists on the Tickets page allow tickets to be filtered by multiple criteria, including the **project**, **classification**, and **status**. These criteria can be used separately or in conjunction with each other, so a user can, for example, see only "Open" tickets for "White Sun Crafts".

Plans for Future Development

The limited time-frame in which to develop the project made it difficult to include all the features I wanted to. However, as I plan to actually use **Anigrams Support** to interface with clients and testers and to keep track of issues in the applications I develop, I will continue to work on it and add features as I need them.

Some features I would like to add include:

- The ability to **message a group of users**, such as all beta testers or all users involved with a certain project. This would be incredibly useful for sending out announcements.

- A **"clean out" function** for the Trash tab of a user's inbox, allowing them to permanently delete all messages that have been marked as trash (and clear up space in the database).

- A **"username" option** for the user's display name, in case they don't want any part of their real name to be disclosed to other users, or they simply want to be more unique.

- The ability to **report an inappropriate** profile image, username, ticket, comment, or message.

- **Automatic re-sizing** of user-uploaded images on the server - in particular profile images - in order to cut down on loading times and save the web administrator (me) the work of manually resizing huge images uploaded by users.

- Features to make uploading attachments easier, including the ability to **drag and drop the file** to upload it (instead of having to browse out to the file) and possibly some sort of **easy screenshot tool**, allowing the user to take a screenshot directly from the browser and upload it easily.

CERA A. WHITE

College graduate with seven months internship experience seeking to leverage academic knowledge and practical experience to effectively fill a .NET developer position.

SKILLS

- Technical experience with Visual Studio, C#, ASP.NET, SQL, HTML, CSS, and developing web applications.
- Careful attention to detail, with the ability to easily catch and troubleshoot errors as they arise during development.
- Skilled at understanding client needs and finding solutions through research, creativity, and independent thinking.
- Eager for new knowledge and experiences, with the ability to learn and adapt to new skills quickly.

EDUCATION

Centriq Training

Application Developer Program

- Technical Training: Visual Studio, C# .NET, ASP.NET, MVC, SQL, SQL Server, HTML 5, JavaScript, jQuery, jQueryUI, CSS3, Responsive/Mobile Development, Data Access Layer, Professional IT Project Experience.

Drury University

Bachelor of Business Administration

- Major in Computer Information Systems, Minor in Global Studies.
- Graduated with Honors, GPA: 3.91.
- Honor Society, Alpha Lambda Delta, Member.
- Graduated December 12, 2012.

WORK EXPERIENCE

RGIS Inventory Specialists

Inventory Expert, Walgreens Team; Training Supervisor

- Coordinate with a team of 6 to perform annual inventory audits for all Walgreens within the Greater Kansas City area, including regular travel to such cities as Topeka, KS and Columbia, MO.
- Count physical inventory in high-dollar areas such as pharmacies and stockrooms accurately and efficiently using the latest scanning equipment and software.
- Train new hires and employees in the proper use of scanning equipment and efficient counting techniques.

Meyer Accounting & Tax, LLC

Office Intern

- Created and maintained a database of additional client information to function alongside commercial tax preparation software, intended to allow office employees to access relevant information on a client more easily and quickly.
- Designed and implemented a new company website, including an accompanying mobile version, according to requirements set by the employer.
- Organized, filed, and created digital copies of client files while assisting with various office duties.