Bilal Syed

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SUMMARY

B.S. Software Engineering senior from the Milwaukee School of Engineering with a minor in mathematics. Worked as a full-stack software developer intern at iit/Sourcetech for around 5 years. Experience working on all sides of software from front-end web applications to low-level embedded systems.

EDUCATION

B.S. Software Engineering | Math Minor | Milwaukee School of Engineering | GPA: 3.74 | May 2023

TECHNICAL SKILLS

- C
- Git & TFS
- Python
- JavaScript
- HTML & CSS
- SQL
- MongoDB
- Java
- C++
- Visual Basic
- CI & CD
- Linux and Unix
- Agile, Scrum & Kanban
- C#
- Test-Driven Development
- WinForms Development
- Web Development
- React and Vue.js
- Software Architecture
- OOP Design Patterns

INTERNSHIP EXPERIENCE

Software Developer Intern | iit-Sourcetech | Milwaukee, WI | Nov 2017 – Present

- **Project:** Designed and developed a repeating meal exception feature using HTML, VueJS, C#, and SQL which allowed nursing home staff to assign exceptions to specific resident meals for specific days of the week automatically removing the need to manually update resident meals.
- **Project:** Prototyped and developed an allergy warning feature using C#, HTML, and JS which would track food allergy data for residents and print an allergy warning on their meal card to applicable residents removing the risk of residents accidentally receiving food containing an allergen during mealtime.
- **Project:** Improved our existing minimum surcharge policy warnings per request of various vendors to account for case count minimums using SQL, C#, HTML, CSS, and JS. Led other interns on this project by designing various components and stubbing out methods for them to work on.
- **Project:** Proposed, researched, and presented on mutation testing and demonstrated a tool known as Stryker.NET that could be integrated with the existing codebase to increase code coverage and result in more robust software.

PROJECT EXPERIENCE

Digital Smart Sign Modem Activated Warning System | TAPCO Inc.

- **Project:** Designed and implemented an embedded system using C++ for TAPCO Inc. to allow for their smart road signs and sensors to communicate with one another over the cellular network replacing their radio-based communication system and resulting an increased range between sensor and sign communication.

Semester Transition Advising Tool (STAT) | MSOE

- **Project:** Developed a React app which assisted MSOE academic advisors with the transition from MSOE's trimester-based course system to its semester-based course system by automatically generating course plans for all students based on their major, minor(s), and transcript.

Personal Portfolio Website

- **Project:** Created a website hosted on GitHub pages and developed using HTML, CSS, and JS to display my projects and additional information about myself. Followed C.R.A.P and other UI design principles to create a visually appealing website.

WORK HISTORY

Salesperson | Silver Choice LLC. | June 2015 - Nov 2017
Software Developer Intern | iit-Sourcetech | Nov 2017 – Present

Bilal Syed Resume Addendum

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FULL STACK WEB APPLICATION PROJECT EXPERIENCE

Repeating Meal Exceptions • iit-Sourcetech

Background: Sourcetech works with nursing homes around the country to develop meal plans for their residents based on resident diets and consistency needs. Sourcetech's system automatically generates a meal plan and creates meal cards for each resident which can be printed and given to residents so that cafeteria staff can give them the correct food for breakfast, lunch, and dinner.

Summary: Created a feature on an existing web application which allowed nursing home staff to set meal exceptions for Sourcetech's auto-generated meal cards for specific nursing home residents that would repeat on a weekly basis for selected days of the week eliminating the need for staff to manually apply exceptions every week.

- Prototyped a UI using dummy data with HTML, CSS, and JS. This went through multiple iterations of review with the executive vice president to ensure that the user experience was clean and consistent with the brand.
- Created a SQL database table to store repeating meal exceptions and hooked up the front end to the backend using C# by creating repository, service, and façade methods to send the data up to front end replacing the dummy data that was initially created for the prototype.
- Updated logic for meal card generation using C# to take repeating meal exceptions into account.

Food Allergy Warning • iit-Sourcetech

Summary: Developed a feature that would alert cafeteria staff in a nursing home of a resident's allergies on their meal card to prevent a resident from receiving food to which they are allergic.

- Prototyped UI for the allergy alert in C# by updating the report generation code used to create the meal cards to include an allergy warning icon.
- Updated resident database table to include information regarding allergies.
- Implemented logic to check if a resident had any allergies when generating their meal card to determine whether to display the allergy warning icon and list their allergies on the meal card.

Vendor Delivery Minimum Fee • iit-Sourcetech

Background: Sourcetech serves as a digital liaison allowing residents to order food ingredients directly from vendors through our applications. Some vendors have price and count minimum policies stating that a customer must order a certain minimum dollar amount or quantity.

Summary: Created a warning dialog that would alert customers purchasing food when their total cost or quantity were under a vendor's minimum allowed threshold and display what those thresholds are.

- Prototyped UI using HTML, CSS, and JS to display minimum threshold warning. Used dummy data for displaying threshold values and triggering the dialog pop-up event.
- Created a database column as part of an existing database table related to vendor data which stored their delivery minimum thresholds.
- Created a field in a separate WinForms application to set delivery minimums for a vendor at a user level. Hooked this up to update the database column that was created.
- Hooked up threshold information to frontend using C#. Updated JS event handling so that the dialog would only appear when a customer was under the threshold.

Semester Transition Advising Tool (STAT) • MSOE

Summary: Designed and developed a tool to assist MSOE advisors with the transition from MSOE's current trimester-based course system to the new semester-based course system which will begin in Fall of 2023. The tool allows advisors to upload the transcript of a student and receive a course plan for what courses the

student needs to take to graduate under the new semester system as well as a series of editing capabilities to allow advisors to modify the suggestions.

- Created an initial SRS to define the functionality and requirements of the project.
- Created a React app which would take in a student's unofficial transcript as a pdf and use pdf.js to extract course and student data from the transcript.
- Implemented functionality to determine courses required based off the major(s) and minor(s) of the student and display them to the user.
- Implemented credit calculation and requirement functionality.
- Implemented the ability to remove, add, and edit courses dynamically with validation to ensure prerequisites and credit requirements were met.
- Implemented the ability to export the transition plan so that it may be stored by the Registrar.

EMBEDDED SYSTEMS PROJECT EXPERIENCE

Digital Smart Sign Modem Activated Warning System • TAPCO Inc. • Senior Design Project

Background: TAPCO specializes in road sign innovations with their smart signs which are various road signs that use a combination of sensors, microcontrollers, and LEDs to reduce accidents on the road. An example of such innovation is their smart crosswalks which use sensors to detect when someone is crossing and activate LEDS on the crosswalk sign to alert drivers. TAPCO currently employs a system that uses radio waves to send signals between sensors and road signs which come with limitations such as having a short range and waves being blocked by obstacles such as buildings and trees.

Summary: Created a peer-to-peer network implementation that would allow TAPCO's sensors to send signals to their digital smart signs over cellular data removing the constraints caused by using radio waves. Created a proof of concept developed on a series of microcontroller to demonstrate sensor to sign communication.

- Implemented a simulator using HTML, CSS, VueJS, and Rust which allowed us to simulate peer to peer communication using UDP and visualize packets being sent.
- Developed a configuration generation application which will be used by TAPCO employees to create a configuration file based on the use case for the system allowing for the system to support a variety of different sign types and scenarios.
- Currently implementing on the microcontrollers using SIM cards to allow the individual components to speak to one another over the Verizon network. This proof of concept will be handed over to TAPCO in the end of the spring term.