

# Mian Rafay

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GitHub: <https://github.com/MianR1> | Personal Website: <https://mianr1.github.io/>

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## Professional Summary

- **75+ hours** of volunteering experience with the Toronto District School Board.
- Experience in web development by developing a personal website using basic web technologies.
- Years of experience in OOP through group/personal projects.
- Proficiency in **optimizing**, **testing**, and **debugging** code in various languages.
- **SQL** knowledge through databases courses, learning to **create**, **optimize** and **modify** databases.
- Experience working on projects with others in hackathons such as HackTheNorth and Major League Hacking.

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## Education

### McMaster University | Hamilton, ON

*Expected Graduation, May 2025*

- BAsC, Honours Computer Science (Co-op)
- Deans' Honour List

### Scarborough Academy for Technological, Environmental and Computer Studies | Toronto, ON

*2017- 2021*

- Ontario Secondary School Diploma
- Ontario Scholar

### Udemy | Remote

*2020*

- Web Development Bootcamp

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## Skills

- Python, C#, C, C++, Java, JavaScript, HTML, CSS, SQL, .NET
- GitHub, Microsoft Applications, Visual Studio, PyCharm, IntelliJ, Multimedia Logic, AutoCAD, Arduino, MobaXterm, Terminal, DBeaver, Labelled Transition System Analyser
- G2 Driver's License

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## Experience

### Home-Based tutor | Toronto, ON

*2019 – 2022*

- Posted ads online and taught students from grades 9-12 in mathematics and computer science.
- Python, C#, Calculus and Vectors, Linear Algebra, and Advanced Functions

### Hack The North Contestant | Remote

*2021*

- Designed and presented a custom-made password encryption program done using C++
- Program Stores encrypted passwords on an SQL database.

### Ontario Tech University | Oshawa, ON

*2019*

- Worked in **groups of 4** to design and program an NXT robot which qualified for the school team.
- The **team leader** of the robotics team and robotics competition finalist at the **tournament** held at the Ontario Tech University, competing against participants present from schools throughout Toronto.

### Scarborough Association for Mathematics Education | Toronto, ON

*2017*

- Selected representative from the school to participate in the Scarborough Math Olympics Contest after achieving the highest grade throughout the school on the 2017 Waterloo Math Test.

# Projects

## Personal website | HTML, CSS, JavaScript

- Personal website designed with eye catching framework including all things in one's portfolio to show to a company's hiring manager.
- Showcases all personal projects, skills, objectives and detailed animations for aesthetic purposes.

## Connect 4 | Java

- Implementation of a connect 4 game which is played by 2 AI players, 2 human players or an AI vs a human player.
- AI coded with algorithms to decide the best possible move increasing chances of winning.
- Uses of encapsulation, inheritance, and abstraction within relevant classes.

## Matrix Calculator | C++

- Computes addition, subtraction, and multiplication with different order matrices specified by the user.
- Uses 2d arrays and distinct algorithms taught in linear algebra courses to go about each operation.

## User Password authenticator | C#

- Checks the password syntax of user input to authenticate the password in a professional manner.
- Stores all previous passwords given by user on a separate .txt file.

## Functions Intersection calculator | Python

- The program calculates the intersection point of the two functions provided by the user within a certain interval using algebraic laws.

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## Relevant Courses

### COMPSCI 2XC3 | Computer Science Practice and Experience

- Implementation of computational solutions to practical problems that combine algorithmic design and analysis with **software design principles**.
- Attended labs with groupmates to complete given tasks in a **timely manner**, working in simulated workplace environments.
- Tested programs to identify speed constraints, bugs, and errors by reverse engineering existing code.
- Upgraded programs to work faster and more **efficiently** with **minimal** time **complexities**.

### COMPSCI 2DB3 | databases

- **Implemented databases**, Data modelling, integrity constraints, principles, and design of **relational databases**.
- Formulated SQL databases through a university server given specific instructions.
- Developed an understanding of query processing, transactions, concurrency control, recovery, and data storage.

### COMPSCI 2ME3 | Software Development

- Completed individual and collaborative assessments with **teams of 4-5 individuals** in a timely manner.
- Completed tasks involving Classes and **inheritance**, class **invariants**, interface specifications; object-oriented **design patterns**; exception handling; tools for interface documentation, testing, program analysis; requirements documentation; quality attributes; development models.

### COMPSCI 2C03 | Data Structures and Algorithms

- Implemented **Data Structures** and **Algorithms** using **Java**.
- Completed tasks using stacks, **queues**, hash tables, and **binary trees**.
- Worked with Mergesort, Heapsort, Quicksort, Shellsort, Time Complexity, Minimum spanning trees, traversals, **shortest path algorithms**.

### DATASCI 2G03 | Scientific Computing

- Performed **hands-on** scientific programming using **C/C++** under **Linux/Unix/Windows**.
- Implemented algorithms, numerical methods, program development and programming in a **modern high-level language**.