

FILES FOR ALL PROJECTS: <https://github.com/mmubash3/Projects.git>

Projects in C

Text Array Processor II, (98%) Dec 2020

- **Program & Functionality:** Built upon **Text Array Processor I** and uses more complex linked lists and this iteration allows deletion of entire sentences.
- **Practice topics:** Structures, dynamically allocated arrays, linked list static memory allocations, functions, working with multiple files and loops.

Text Array Processor I, (81%) Nov 2020

- **Program:** Dynamic allocation to handle any volume of data and manipulation of input text to store it in a structured manner.
- **Functionality:** Takes input of a string of words, remove all unnecessary whitespace and store it in sentences, find the position of a word in the sentence and which specific sentence it is in.
- **Practice topics:** Structures, dynamically allocated arrays, linked list static memory allocations, functions, working with multiple files and loops.

Numeric Array Processor, C (100%) Oct 2020

- **Program:** Manipulating a static numeric array.
- **Functionality:** The program can find size of an array, print it in reverse, finds the smallest integer, the sum, moving integers to another array, switching first and last items in it and sorting it in ascending order.
- **Practice topics:** numeric arrays, static memory allocations, and loops.

Calculators, C (100%) Sept 2020

- **Program:** Converter and exponent calculator
- **Functionality:** Calculates the exponent of a number and converts the values of length, temperature and volume to desired units.
- **Practice topics:** C types of character, int, and float, to understand and use C types such as char, int, and float, as well as the flow control structures studied in class, and to use functions and recursive functions

Projects in Java

Path Finder II, Java (85%) April 2020

- **Program & Functionality:** Finds the shortest path on a map from point A to point B in a provided map.
- **Practice topics:** The solution of problems using circular arrays and queues, the design of algorithms in pseudocode and their implementation in Java

Snakes II, Java (100%) March 2020

- **Program:** Snake game emulator.
- **Functionality:** Snake will move around the board and grow when it eats and will die if it hits an object or the wall or the eagle reaches the snake.
- **Practice topics:** Linked structures and doubly linked lists, exception handling, algorithm design and modular design.

Path Finder I, Java (72.5%) March 2020

- **Program & Functionality:** Finds the path on a map from point A to point B in a provided map.
- **Practice topics:** The solution of problems through the use of stacks, the design of algorithms in pseudocode and their implementation in Java, handling exceptions

Snakes I, Java (100%) Feb 2020

- **Program:** Snake game emulator.
- **Functionality:** Snake will move around the board and grow when it eats and will die if it hits an object or the wall.
- **Practice topics:** Java and Java libraries, arrays and two-dimensional arrays, reading input from a file, algorithm design and modular design

Projects in Python

Country Classes, Python (97.5%) Dec 2019

- **Program & Functionality:** Updates an existing data file containing information about countries.
- **Practice topics:** Strings and text files, writing and using classes, testing code, using complex data structures (i.e., lists, sets and dictionaries)

Sentiment Analysis, Python (100%) Nov 2019

- **Program & Functionality:** Analyze Twitter information using a function that performed simple sentiment analysis on Twitter data. The objective was to determine which time zone was the “happiest”.
- **Practice topics:** Functions, complex data structures, nested loops, text processing, file input and output, exceptions in Python, using Python modules, testing programs, writing code that is used by other programs.

Volume Calculator, Python (97.5%) Oct 2019

- **Program & Functionality:** Computes the volume for cubes, pyramids and ellipsoids.
- **Practice topics:** Loops, using functions, using lists in Python, creating and using Python modules, testing, following program specifications and requirements.

Good Morning America, Python (85%) Sept 2019

- **Program:** Computes the cost of breakfast at the Good Morning America! restaurant.
- **Functionality:** The program prompts the user for input and validates it before computing the results.
- **Practice topics:** Basic Python programming constructs, expressions and decisions, getting input from users, validating input, algorithm development and testing, following program specifications

Other Projects

Spending Tracker, Excel, Python, Power BI June 2020

- **Program & Functionality:** Track student spending habits and compare them to peers. Generated dynamic reports using Power BI for multiple users from a database of over 18,000 entries.
- **Practice topics:** DAX, data collection, data cleaning, data formatting, data analysis, data modelling and data analysis.

Time Tracker, Excel 2019-On going

- **Program:** Tracking hourly time in a coloured format in excel of how time is spent.
- **Functionality:** Used the analysis to identify where most time was being spent and reallocate my time accordingly.