

HAMZA DURIC

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EDUCATION

Michigan State University | East Lansing, MI

Bachelor of Science in Computer Science | Expected December 2027

GPA: 3.9 / 4.0

Past coursework: Data Structures & Algorithms; Computer Organization & Architecture; Programming II (C++); Discrete Mathematics

Current coursework (in progress): Information Management and the Cloud (SQLite3); Computer Systems; Object-oriented Software Development

TECHNICAL SKILLS

Languages: Python, C, C++, Java, SQL, ARM64 Assembly

Tools & databases: Git, UNIX/Linux, MIT App Inventor, SQLite3 (coursework)

Data structures & algorithms: AVL trees, doubly linked lists, hash maps, stacks, sorting, tree traversal, time and space complexity analysis

Systems & development: POSIX file I/O, file descriptors, dynamic memory allocation, pointers, bit manipulation, object-oriented programming, k-nearest neighbors (k-NN) classification

PROJECT EXPERIENCE

Multi-Destination File-Copy Utility | C++

- Built a file-copy utility using POSIX file descriptors, configurable buffers, and multiple destinations.
- Added append/truncate modes, overwrite and same-file checks, and handling for partial writes and interrupted I/O.

AVL Tree & Nearest-Neighbor Classifier | Python

- Implemented AVL insertion, deletion, rotations, and rebalancing with parent pointers and height tracking.
- Built a k-NN classifier that stores labeled data in an AVL tree and predicts labels using inverse-distance weighting and neighbor selection with distance-tie handling.

Product Recommendation & Sorting Algorithms | Python

- Implemented selection, bubble, insertion, and hybrid merge sorting with custom comparators.
- Developed recommendation logic to select the top 30% of products by relevance, then rank by price or rating with tie-breaking rules while preserving the input list.

Encoded-File Decoder | C

- Developed a file decoder that applies XOR and cyclic rotations to encoded bit strings, then reconstructs text-based images in reverse line order.
- Implemented a linked-list stack with dynamic allocation, string copying, push/pop operations, and cleanup of allocated nodes and buffers.

ADDITIONAL EXPERIENCE

Prestige Transport LLC | Dispatcher | May 2023 - Present