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EDUCATION

Bachelor of Computer Science **2015 - 2019**
University of Central Punjab

PROFESSIONAL EXPERIENCE

- **Software Engineer (C++ developer)** **June 2021 - Present**
  Byonyks Pvt ltd.

  In my current role, I develop and maintain software for a PD(Peritoneal Dialysis) machine, focusing on new feature implementation, sensor integration, bug resolution and working with different communications protocols such as RS232, RS485, I2C and more. I manage a multi-processing software with inter-process communication, adhering to a layered architecture. All the development is done in Qt and C++ on embedded linux.

- **Software Engineer (C++ developer)** **April 2020 - May 2021**
  Ebryx Ltd.

  Project: Worked on a cross platform firewall desktop application written in Qt and C++.

- **Research Assistant at CSALT** **Sept 2019 - March 2020**
  Information Technology University

  Project: CIPL(Crime Investigation and Prevention Lab). In this project I was given the task of keyword spotting in audio utterances.

TOOLS/SKILLS

AWS	Linux	Bash
LaTex	Qt	Qml
C++17	STL	Git
Github	JIRA	BitBucket

ACADEMIC/HOBBY PROJECTS

- **Solved all problems of the book "The Modern C++ Challenge: Become an expert programmer by solving real-world problems":**

  I solved all 100 problems in "The Modern C++ Challenge" book, showcasing my passion for problem-solving. I indulged into diverse topics such as primality testing, Collatz conjecture, variadic template arguments, regex, working with time zones in Qt, data structures, multithreading, design patterns, file operations (XML, JSON, PDF), image manipulation, SQLite, cryptography and networking.

- **Solved 203 problems on LeetCode:**

  As a hobby project I solved 203 problems on LeetCode. Which include 98 problems on easy difficulty, 102 problems of medium difficulty and 3 problems of hard difficulty. All the problems solved were related to data structures and algorithms and were programmed in C++17.

- **Search Engine of Wikipedia articles:**

  In this project all provided Wikipedia articles are first stored in memory then queries are performed. Two different data structures are used to store data. 1. Hash map (unordered_map) and tree structure (map) which are provided by C++11.
  Project description:

  https://docs.google.com/document/d/1kiQhWkGNz5xGj6HbdIeS0W72_jL0nDDU6HkyUZfqWmU/edit

- **File Compression/Decompression-Huffman algorithm:**

  A set of programs are developed which compresses a text file given by the user and then decompresses it. To achieve this Huffman algorithm was used. During compression, the input file is read twice: First iteration file is traversed to generate a Huffman tree and store it on disk. Second iteration is used to compress a file. During decompression first the tree is loaded from the disk then decompression is done.

- **Notepad and command prompt (Concept used "generic trees"):**

  A Windows-like command prompt in which a user can create, edit, delete directories and files. For storing file and directory structure a custom made tree structure was implemented. Along with a text editor in which a user can edit the text of a file.

- **Disk Sort/External Sort:**

  In this project a program is developed which sorts an input file that can't be fit into RAM. Program reads the input file in chunks, sort each chunk and writes the sorted chunk in binary file. Then all binary files are merged to generate a sorted output file.

- **AI Based Snake Game:**

  An AI -based snake which uses three different algorithms for snake movement i.e. Breadth-first search (BFS), Depth-first search (DFS) and A* (heuristic based). Random food for snake is generated every time. Game is over when the snake bites itself. This application is built using external C++ libraries SFML (Simple Fast Multimedia Library) for graphics.The type of algorithm is given at run time via command line argument.

- **Minesweeper in C#**

  A minesweeper game developed in C# using windows form platform.

Drive link to some projects:
https://drive.google.com/open?id=1eblPMlRrQkPPWiPpWaNj0lurbtlwcpqY
