

## **CMPSC 200 Final Project Proposal: Katie, Maya, and Paige**

We want to create a final project in which we create a converter that converts between binary, decimal, and hexadecimal values. Each value will be able to convert to every other value type. In order to implement this, we will put every conversion function into its own file (which will be created as a .h file). These function files will be called into a main.c file, which will take user input for the kind of values it wants to convert from and convert to. We also want to create a calculator that adds, subtracts, multiplies, and divides binary values. This will be another choice that the user could choose to do through the same main.c file.

### **Main File:**

The main file serves as the primary flow of control for the project. The main file will prompt the user to choose whether they want to use the converter or the calculator. Depending on their choice, the user will be asked a series of questions in order to gather the input needed for the computations.

### **Calculator Files:** (imported in main.c)

Each function will take as input a binary and return a binary to be converted back to a decimal in the BinaryToDecimal.h file. As of now, we are limiting inputs to only decimals. However, the computation will be executed in binary.

Add.h- This function adds two binary values

Subtract.h - This function subtracts two binary values

Multiply.h - This function multiplies two binary values

Divide.h - This function divides two binary values

### **Converter Files:** (imported in main.c)

BinaryToDecimal.h - function that converts a binary value to decimal

BinaryToHex.h - function that converts a binary value to hexadecimal

DecimalToBinary.h - function that converts a decimal value to binary

DecimalToHex.h - function that converts a decimal value to hexadecimal

HexToBinary.h - function that converts a hexadecimal value to binary

HexToDecimal.h - function that converts a hexadecimal value to decimal

## **Sources**

<https://www.tutorialspoint.com/how-to-convert-binary-to-hexadecimal>

<https://www.tutorialspoint.com/how-to-convert-decimal-to-hexadecimal>

<https://www.tutorialspoint.com/how-to-convert-binary-to-decimal>