# Additional Tasks C ++ – NOT MANDATORY

In C++, you can now look at converting to Hex. Consider the code below; Given this, can you now combine the programs from the previous tutorial to now convert from Hex to signed decimal? I will demonstrate programming this code in an accompanying video, and then we will look at combining all three previous weeks of code next week.

string hexToBin() {

//get the input

string hexInput;

cout << "Please enter your hexadecimal number in capitals";

cin >> hexInput;

string binaryOutput = "";

int hexIndex = 0;

while (hexIndex < hexInput.length()) {

switch (hexInput[hexIndex]) {

case '0': binaryOutput = binaryOutput + "0000";

break;

case '1': binaryOutput = binaryOutput + "0001";

break;

case '2': binaryOutput = binaryOutput + "0010";

break;

case '3': binaryOutput = binaryOutput + "0011";

break;

case '4': binaryOutput = binaryOutput + "0100";

break;

case '5': binaryOutput = binaryOutput + "0101";

break;

case '6': binaryOutput = binaryOutput + "0110";

break;

case '7': binaryOutput = binaryOutput + "0111";

break;

case '8': binaryOutput = binaryOutput + "1000";

break;

case '9': binaryOutput = binaryOutput + "1001";

break;

case 'A': binaryOutput = binaryOutput + "1010";

break;

case 'B': binaryOutput = binaryOutput + "1011";

break;

case 'C': binaryOutput = binaryOutput + "1100";

break;

case 'D': binaryOutput = binaryOutput + "1101";

break;

case 'E': binaryOutput = binaryOutput + "1110";

break;

case 'F': binaryOutput = binaryOutput + "1111";

break;

}

hexIndex++;

}

return binaryOutput;

}

string binToHex() {

//get input

cout << "Please enter a binary number with no spaces: ";

string binaryInput;

cin >> binaryInput;

//make sure the input's length is a multiple of 4

while ((binaryInput.length() % 4) != 0) {

binaryInput = "0" + binaryInput;

}

string hexOutput = "";

//now look at each group of 4 digits, and convert to hexadecimal.

int index = 0;

while (index + 3 < binaryInput.length()) {

string fourDigits = binaryInput.substr(index, 4);

if (fourDigits == "0000") {

hexOutput = hexOutput + "0";

} else if (fourDigits == "0001") {

hexOutput = hexOutput + "1";

} else if (fourDigits == "0010") {

hexOutput = hexOutput + "2";

} else if (fourDigits == "0011") {

hexOutput = hexOutput + "3";

} else if (fourDigits == "0100") {

hexOutput = hexOutput + "4";

} else if (fourDigits == "0101") {

hexOutput = hexOutput + "5";

} else if (fourDigits == "0110") {

hexOutput = hexOutput + "6";

} else if (fourDigits == "0111") {

hexOutput = hexOutput + "7";

} else if (fourDigits == "1000") {

hexOutput = hexOutput + "8";

} else if (fourDigits == "1001") {

hexOutput = hexOutput + "9";

} else if (fourDigits == "1010") {

hexOutput = hexOutput + "A";

} else if (fourDigits == "1011") {

hexOutput = hexOutput + "B";

} else if (fourDigits == "1100") {

hexOutput = hexOutput + "C";

} else if (fourDigits == "1101") {

hexOutput = hexOutput + "D";

} else if (fourDigits == "1110") {

hexOutput = hexOutput + "E";

} else if (fourDigits == "1111") {

hexOutput = hexOutput + "F";

}

index = index + 4;

}

return hexOutput;

}

int main()

{

cout << binToHex();

}