Lab #2

Introduction to Algorithms

You are given a partially complete program Binary.cpp

This program will do computations with a 1D array. The program will convert a number in decimal into its binary equivalent and store the bits in an array called bits[] of size MAXBITS.

You compute the bits using the pseudocode given below, and then print them out in reverse order to get the binary number. You can do this in the main program, i.e. you don’t need a separate function.

index = 0;

number = N; // choose N = 16 say

while (number > 0) {

bits[index] = number mod 2 // remainder when divided by 2

number = number / 2 // divide number by 2.

index = index + 1

}

print bits[i] in reverse order, from last (i = index – 1) to first (i = 0).

You need a for loop to do this.

Then test the code to check that it is working correctly. For N = 16, the answer is 1 0 0 0 0.

Modify the program so that it computes and prints the binary values of the numbers from 100 to 128. Do this using a for loop on the variable num.

for (num = 100; num <= 128; num ++)

{

number = num; // make copy of the loop variable

// code here to compute the bits array

}