Solution Review: Convert Decimal Number to Binary

Let's go over the solution review of the challenge given in the previous lesson.

We'll cover the following

Solution

```
#include <iostream>

using namespace std;

int main() {
  // Initialize variables
  int decimal = 10, binary = 0;
  int remainder, product = 1;
  // Prints value of decimal
  cout << "Decimal Number = " << decimal << endl;
  // while block
  /*Checks if the value of `decimal` is not equal to `0`.
  If yes, then execute line No. 17 to 21.
  If no, then execute line No. 23.
  */
  while (decimal != 0) {
    remainder = decimal % 2;
    binary = binary + (remainder * product);
    decimal = decimal / 2;
    product *= 10;
  }
  // while exit
  cout << "Binary Number = " << binary;
  return 0;
}
```

Explanation

To convert the decimal number into binary, we should keep dividing the number by `2` until the quotient is not equal to `0`. The resultant remainder is the number in binary.

In the code above, we keep iterating through the loop until the `decimal` is not equal to `0`. We first divide the number by 2 and store the remainder in the `remainder` variable. Then, we multiply the `remainder` by `product`, add `binary` in it and then store the answer in `binary`. For the next iteration, we divide the `decimal` by `2` and multiply the `product` by `10`.

Let’s solve a difficult challenge in the next lesson.