1. Write a program that takes an integer from the user and converts it into its proper binary and hexadecimal representation using a LIFO structure.

Precondition: The decimal numbers will be integers and positive.

**Binary**

|  |  |  |  |
| --- | --- | --- | --- |
| 2^3 | 2^2 | 2^1 | 2^0 |
| 8 | 4 | 2 | 1 |
| 10 | 1 | 0 | 1 | 0 |

10 mod 2 =0, 10/2=5

5 mod 2 =1, 5/2=2

2 mod 2=0, 2/2=1

1 mod 2 =1, 1 /2=0

**Hexadecimal**

Note that in the hexadecimal number system, the numbers are in the following sequence

0 1 2 3 4 5 6 7 8 9 A B C D E F

The decimal equivalent is

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

To convert the decimal number 65 into its hexadecimal equivalent:

|  |  |  |  |
| --- | --- | --- | --- |
| 16^3 | 16^2 | 16^1 | 16^0 |
| 4096 | 256 | 16 | 1 |
| 65 |  |  | 4 | 1 |

65 mod 16=1 65/16=4

4 mod 16=4 4/16=0