Task 2

1. 10059

|  |  |  |
| --- | --- | --- |
| Division | Quotient | Remainder |
| 10059/2 | 5029 | 1 |
| 5029/2 | 2514 | 1 |
| 2514/2 | 1257 | 0 |
| 1257/2 | 628 | 1 |
| 628/2 | 314 | 0 |
| 314/2 | 157 | 0 |
| 157/2 | 78 | 1 |
| 78/2 | 39 | 0 |
| 39/2 | 19 | 1 |
| 19/2 | 9 | 1 |
| 9/2 | 4 | 1 |
| 4/2 | 2 | 0 |
| 2/2 | 1 | 0 |
| 1/2 | 0 | 1 |

10011101001011 – is the binary value of 10059

|  |  |  |
| --- | --- | --- |
| Division | Quotient | Remainder |
| 10059/16 | 628 | 11 - B |
| 628/16 | 39 | 4 |
| 39/16 | 2 | 7 |
| 2/16 | 0 | 2 |

274B – is the hexadecimal value of 10059

1. 99999 – 11000011010011111 + 10011101001011 = 11010110111101010

11000011010011111 – 10011101001011 = 10101111101010100

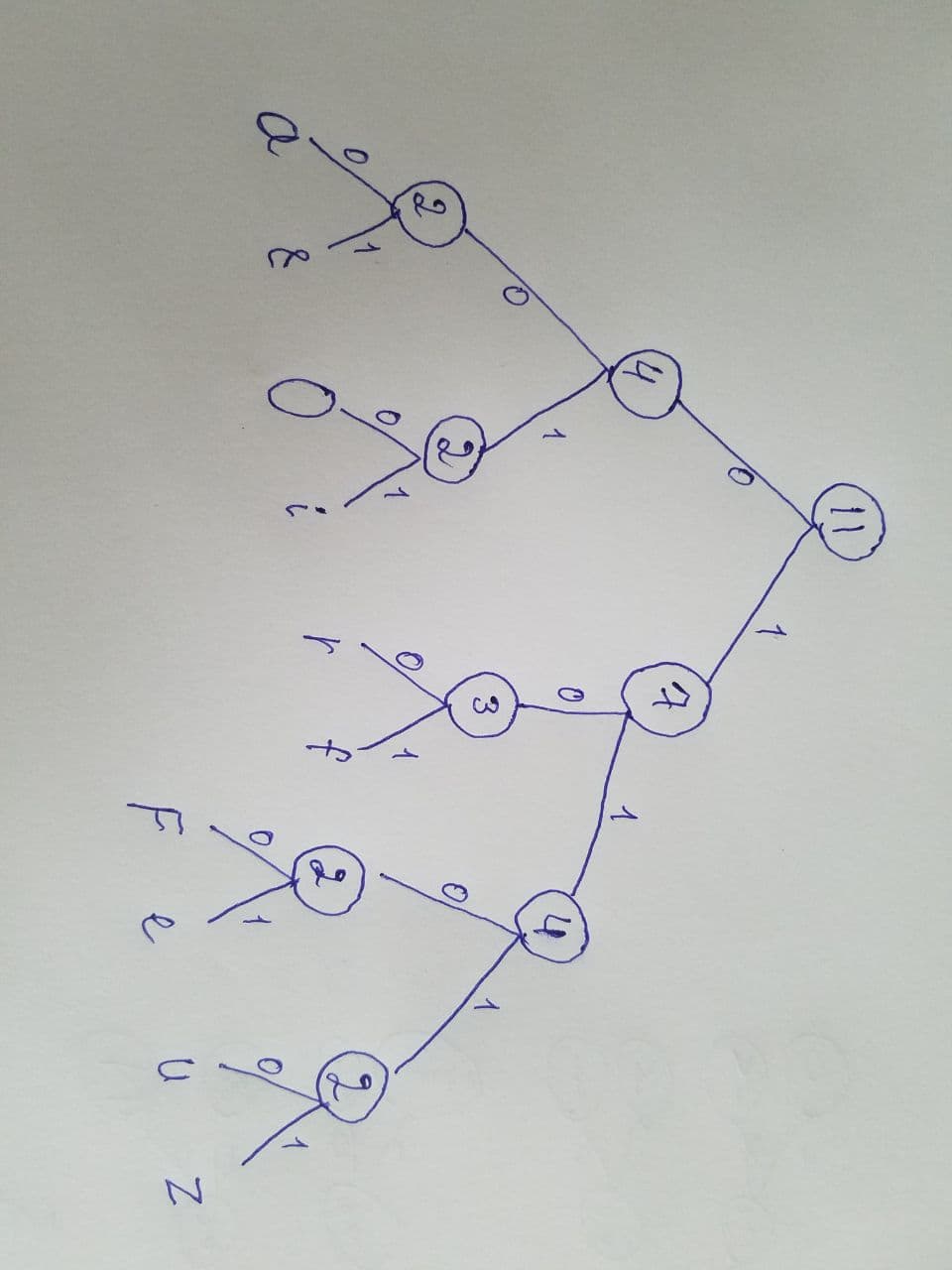
1. Hexadecimal numbers are widely used nowadays. For example, in representation of Media Access Control or MAC address. In naming of colors, especially in web pages.

Task 3

Orif&Feruza

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| a | & | O | i | r | f | F | e | u | z |
| 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 |
| 000 | 001 | 010 | 011 | 100 | 101 | 1100 | 1101 | 1110 | 1111 |

1\*3 + 1\*3 + 1\*3 +1\*3 +1\*3 +1\*3 + 1\*4 + 1\*4 + 1\*4 + 1\*4 = 18 + 16 = 34 bits

Task 4

1005945237

Search for 7

1. Put in ascending order – 0, 0, 1, 2, 3, 4, 5, 5, 7, 9
2. 10/2 = 5, midpoint is 3
3. X > 3, so leave only right side
4. 5/2 = 2.5, rounded 3. Midpoint is 5
5. X > 5, so leave only right side
6. 2/2 = 1, midpoint is 7
7. X is 7, 7 = 7, number is found