

- (1) Write a program that reads the radius of a circle and calculates the area and circumference.
- (2) Write a C program to take a number and a character from user if the number is even print the same character, if the number is odd print the other case of the character (a->A, B->b).
- (3) Write a program to reverse a number in decimal representation (1205->5021).
- (4) Write a program to count the number of 1's in an unsigned 32-bit integer.
- (5) write a program to print the binary representation of a number, try not to print zeros on the left (5->print 101).
- (6) Write c code to reverse bits in an 8-bit number (149->10010101 return 169->10101001), (5->00000101 return 160->10100000).
- (7) Write c code to sum numbers from 1 to 100 (without loop).

(8) Write a full C program to take 4 choose from user:

- 1-Set bit.
- 2-Clear bit
- 3-Toggle bit.
- 4-Read bit.

then take number, and bit number.

print the number after set, clear, or toggle if 1,2 or 3 is selected.

print the bit value if 4 is selected.

(9) Write c function to take number of lines and draw pattern with '*' like:

The image displays two examples of star patterns. The left example is a 5x5 grid of stars, with a single star located at the top-right position. The right example is a more complex, non-uniform star pattern consisting of several smaller clusters of stars.

(10) Write c function to count the max number of zeros between two ones in the binary representation of a number (296384-> {1001000010111000000} return 4).

- (11) Given two integers: L and R, Find the maximal value of A xor B where A and B satisfy the condition $L \leq A \leq B \leq R$ Constraints: $1 \leq L \leq R \leq 1000$ **Input format:** the input contains two lines first line contains L and next line contains R. **Output format:** The maximum value of Axor B.

The input tells us that $l = 10$ and $r = 15$. All the pairs which comply to above condition are the following:

$$10 \oplus 10 = 0$$

$$10 \oplus 11 = 1$$

$$10 \oplus 12 = 6$$

$$10 \oplus 13 = 7$$

$$10 \oplus 14 = 4$$

$$10 \oplus 15 = 5$$

$$11 \oplus 11 = 0$$

$$11 \oplus 12 = 7$$

$$11 \oplus 13 = 6$$

$$11 \oplus 14 = 5$$

$$11 \oplus 15 = 4$$

$$12 \oplus 12 = 0$$

$$12 \oplus 13 = 1$$

$$12 \oplus 14 = 2$$

$$12 \oplus 15 = 3$$

$$13 \oplus 13 = 0$$

$$13 \oplus 14 = 3$$

$$13 \oplus 15 = 2$$

$$14 \oplus 14 = 0$$

$$14 \oplus 15 = 1$$

$$15 \oplus 15 = 0$$

Here two pairs (10, 13) and (11, 12) have maximum xor value 7, and this is the answer.
