1. **WAP to take your phone number as input and (i). Display it as integer, (ii). Reverse its alternate positions.**
   Sample Input: 9876543210
   Sample output: 9876543210
   8967452301

2. **WAP to find the positive difference between the sum of odd and even digits of your phone number.**
   Sample Input: 9821076354
   Sample Output: 5
   Explanation : 9+7+5+3+1=25 8+6+4+2=20 diff=5

3. **WAP to take a number as input and check whether the number is**
   a. **Palindrome**
   b. **Prime number**
   c. **Armstrong number**
   d. **Perfect number**
   e. **Strong number**

   Using functions for each type returning (1/0) based on success value.

4. **WAP to find whether a given number is palindrome capable or not.**
   Sample input: 2125445
   Sample Output: Yes
   Sample input: 212544
   Sample Output: No
   The 1st number can be a palindrome as 2451542 but the 2nd can never be a palindrome.

5. **WAP to input two numbers and find**
   a. **LCM**
   b. **HCF**
   c. **Common Factors between them**
   d. **Composite numbers between them**

6. **WAP to input n and**
   a. **Find Fibonacci series up to n**
   b. **Print n lines of Pascal's triangle**

7. Pattern Programs (do it for a dynamic input n)

```
Pattern1 :
*
**
***
****
*****
```

```
Pattern2 :
    *
   **
  ***
 ****
*****
```

```
Pattern3 :
*****
****
***
**
*
```

```
Pattern4 :
*****
 ****
  ***
   **
    *
```

```
Pattern5 :
    *
   * *
  * * *
 * * * *
* * * * *
```

```
Pattern6 :
* * * * *
 * * * *
  * * *
   * *
    *
```

```
Pattern7 :
*       *
**     **
***   ***
**** ****
*********
```

```
Pattern8 :
*********
**** ****
***   ***
**     **
*       *
```

```
Pattern9 :
    *
   * *
  *****
 * * * *
*********
```

```
Pattern10 :
    * * * *
   *     *
  *     *
 *     *
* * * *
```

```
Pattern11 :
    *       *
   * *     * *
  *   *   *   *
 *     * *     *
*       *       *
```

```
Pattern12:
1A
1A 2B
1A 2B 3C
1A 2B 3C 4D
1A 2B 3C 4D 5E
```

```
Pattern13:
1A
2B 3C
4D 5E 6F
7G 8H 9I 10J
11K 12L 13M 14N 15O
```

```
Pattern14:
1  2  3  4
8  7  6  5
9  10 11 12
16 15 14 13
17 18 19 20
```

```
Pattern15:
* * * * * * * * *
* * * *   * * * *
* * *       * * *
* *           * *
*               *
* *           * *
* * *       * * *
* * * *   * * * *
* * * * * * * * *
```

8. Write a program to convert

1. **A given decimal to binary**
2. **A given binary to decimal**

9. Write a program to implement searching techniques using functions.

a. **Linear Search**
b. **Binary Search**
c. **1/3 Search => dividing the array like binary search but in parts of 1/3 of array**
d. ***** try all these as recursive functions also**

10. WAP to implement simple sorting algorithms.

a. **Bubble sort**
b. **Selection sort**
c. **Insertion sort**

11. WAP to count the duplicate elements in the array and display them.

Input : 1 2 3 1 1 2 4 5
Output: 1: 3 duplicates
2: 2duplicates

12. WAP for sorting an array with respect to the frequency of the integers.

(frequency sorting refers to the maximum times occurring elements at first and similarly cont.)