Problem name: swap 2 numbers (3 ways)
  (a) Using third variable

Source code:

```c
#include <stdio.h>

int main() {
    int a, b, c;
    printf("Enter first number: ");
    scanf("%d", &a);
    printf("Enter second number:");
    scanf("%d", &b);

    c = a;
    a = b;
    b = c;

    printf("After swapping: a = %d, b = %d\n", a, b);
    return 0;
}
```

Output:
Enter first number: 34
Enter second number:24
After swapping: a = 24, b = 34

Problem name: swapping two numbers
   (b) Using arithmetic operators

Source code:

```
  #include <stdio.h>

int main() {
    int a, b;
    printf("Enter first number:");
    scanf("%d", &a);
    printf("Enter second number:");
    scanf("%d",&b);
    a = a + b;
    b = a - b;
    a = a - b;

    printf("After swapping: a = %d, b = %d\n", a, b);
    return 0;
}
```

Output:
Enter first number:23
Enter second number:67
After swapping: a = 67, b = 23

Problem name: swapping 2 numbers
(C) using bitwise XOR operator

Source code:
```c
#include <stdio.h>

int main() {
    int a, b;
    printf("Enter two numbers: ");
    scanf("%d %d", &a, &b);

    a = a ^ b;
    b = a ^ b;
    a = a ^ b;

    printf("After swapping: a = %d, b = %d\n", a, b);
    return 0;
}
```
Output:
Enter two numbers: 56
65

After swapping: a = 65, b = 56

Problem name:find maximum between three numbers using ladder if else or nested if.

Source code:
```c
#include <stdio.h>
int main() {
    int a, b, c;
    printf("Enter three numbers: ");
    scanf("%d %d %d", &a, &b, &c);

    if (a >= b && a >= c)
        printf("Maximum: %d\n", a);
    else if (b >= a && b >= c)
        printf("Maximum: %d\n", b);
    else
        printf("Maximum: %d\n", c);

    return 0;
}
```

Output:
Enter three numbers: 6 7 3
Maximum: 7

Problem name: Check if a given year is a leap year or not.

Source code:
```c
#include <stdio.h>
int main() {
    int year;
    printf("Enter a year: ");
    scanf("%d", &year);

    if ((year % 400 == 0) || (year % 4 == 0 && year % 100 != 0))
        printf("%d is a Leap Year\n", year);
    else
        printf("%d is NOT a Leap Year\n", year);

    return 0;
}
```

Output:
Enter a year: 2004
2004 is a Leap Year

Enter a year: 2025
2025 is NOT a Leap Year

Problem name: C program to input a character from the user and check whether the given character is alphabet, uppercase, lowercase, digit or special character.

Source code:
```c
#include <stdio.h>
#include <ctype.h>
int main() {
    char ch;
    printf("Enter a character: ");
    scanf(" %c", &ch);

    if (isalpha(ch)) {
        if (isupper(ch)) printf("Uppercase Alphabet\n");
        else printf("Lowercase Alphabet\n");
    }
    else if (isdigit(ch)) printf("Digit\n");
    else printf("Special Character\n");

    return 0;
}
```

Output:
Enter a character: f
Lowercase Alphabet

Enter a character: A
Uppercase Alphabet

Enter a character: 5
Digit

Enter a character: &
Special Character

Problem name: C program to check whether an alphabet is vowel or consonant.

Source code:
```c
#include <stdio.h>
int main() {
    char ch;
    printf("Enter an alphabet: ");
    scanf(" %c", &ch);

    if (ch=='a'||ch=='e'||ch=='i'||ch=='o'||ch=='u'||
        ch=='A'||ch=='E'||ch=='I'||ch=='O'||ch=='U')
        printf("Vowel\n");
    else
        printf("Consonant\n");

    return 0;
}
```

Output:
Enter an alphabet: D
Consonant

Enter an alphabet: A
Vowel

Problem name: C program to calculate grade of student, If (i) number>=80: Grade A+,(ii) number>= 70: (iii) number between 60 to 70: Grade A-, (iv) number between 50 to 60: Grade B (v) number>=40: Grade C and number <40:Grade F.

Source code:
```c
#include <stdio.h>
int main() {
    int marks;
    printf("Enter marks: ");
    scanf("%d", &marks);

    if (marks >= 80) printf("Grade A+\n");
    else if (marks >= 70) printf("Grade A\n");
    else if (marks >= 60) printf("Grade A-\n");
    else if (marks >= 50) printf("Grade B\n");
    else if (marks >= 40) printf("Grade C\n");
    else printf("Grade F\n");

    return 0;
}
```

Output:
Enter marks: 89
Grade A+

Enter marks: 75
Grade A

Enter marks: 68
Grade A-

Enter marks: 57
Grade B

Enter marks: 43
Grade C

Enter marks: 24
Grade F

Problem name: C program to input week number and print day of week name using switch case.

Source code:
```c
#include <stdio.h>
int main() {
    int n;
    printf("Enter week number (1-7): ");
    scanf("%d", &n);

    switch(n) {
        case 1: printf("Sunday\n"); break;
        case 2: printf("Monday\n"); break;
        case 3: printf("Tuesday\n"); break;
        case 4: printf("Wednesday\n"); break;
        case 5: printf("Thursday\n"); break;
        case 6: printf("Friday\n"); break;
        case 7: printf("Saturday\n"); break;
        default: printf("Invalid week number\n");
    }
    return 0;
}
```

Output:
Enter week number (1-7): 5
Thursday

Problem name: C program to input a number and check if the given number is odd or even.

Source code:

```c
#include <stdio.h>
int main() {
    int num;
    printf("Enter a number: ");
    scanf("%d", &num);

    if (num % 2 == 0)
        printf("%d is Even\n", num);
    else
        printf("%d is Odd\n", num);

    return 0;
}
```

Output:

Enter a number: 34
34 is Even

Enter a number: 15
15 is Odd