



Practical 04



PS Gunathilake
30138

practical 04

If else and Switch Statements

- 1) Use If-Else and write a program that reads an integer and determines and prints if the number is even or odd. (i.e., divisible by 2)

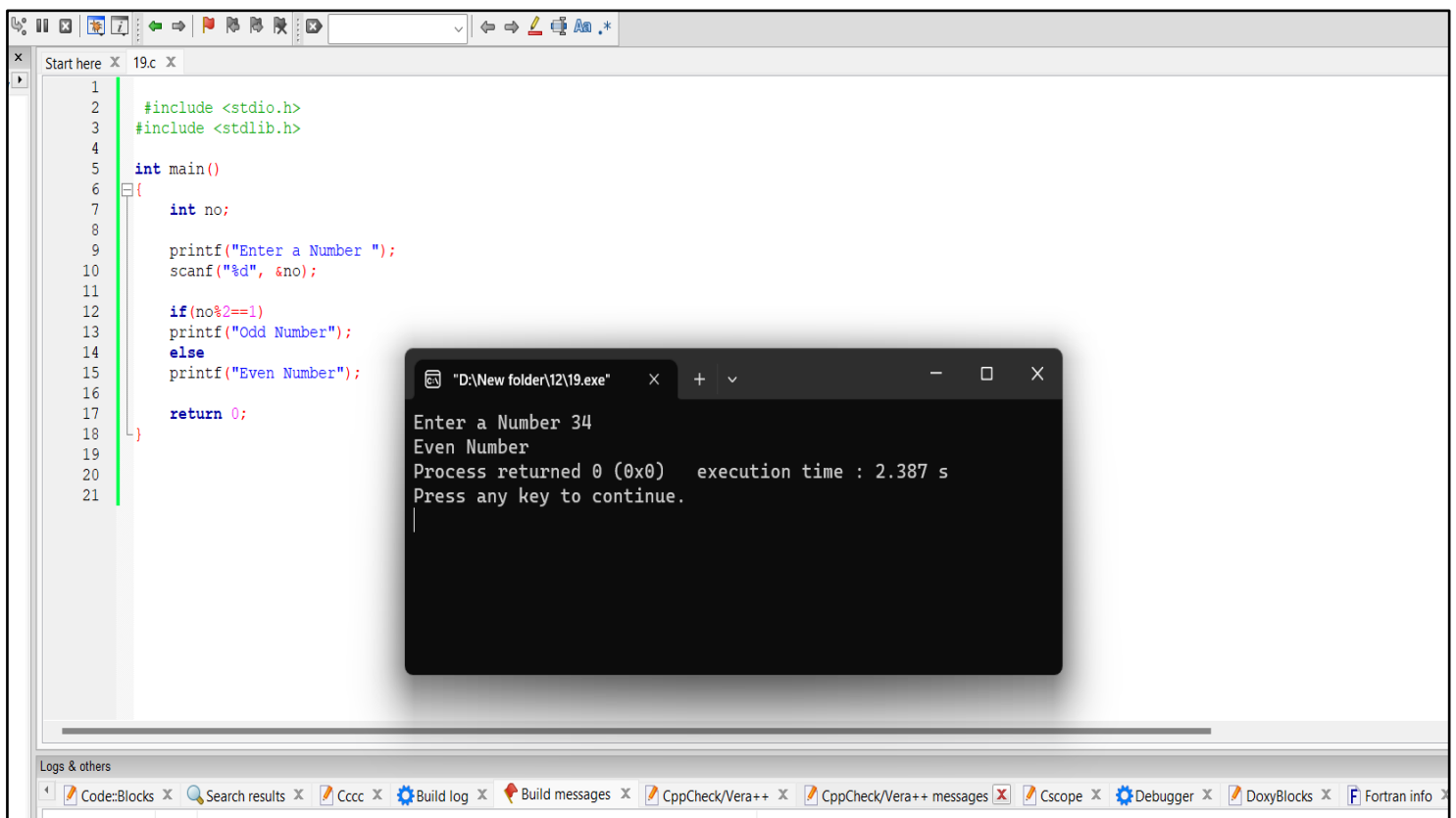
```
#include <stdio.h>

int main ()
{
    int no;

    printf("Enter a Number ");
    scanf("%d", &no);

    if(no%2==1)
        printf("Odd Number");
    else
        printf("Even Number");

    return 0;
}
```



2) Write a simple menu driven calculator to perform (+ - / *) operations. (The program must display a menu to select the desired operator.)

```
#include <stdlib.h>

int main ()
{
    int choice;
    float no1, no2, result;

    printf("Simple Menu Driven Calculator \n");
    printf("1. Addition \n");
    printf("2. Substraction \n");
    printf("3. Multipication \n");
    printf("4. Division \n");
    printf("Enter Your Choice [1-4]: \n");
    scanf("%d", &choice);

    printf("Enter First Number ");
    scanf("%f", &no1);
    printf("Enter Second Number ");
    scanf("%f", &no2);

    switch(choice)
    {
    case 1:
        result=no1+no2;
        printf("%.2f \n", result);
        break;

    case 2:
        result=no1-no2;
        printf("%.2f \n", result);
        break;
```

case 3:

```
result=no1*no2;  
printf("%.2f \n", result);
```

break;

case 4:

```
if(no2 != 0)  
{  
    result=no1/no2;  
    printf("%.2f \n", result);  
}
```

else

```
{  
    printf("Can Not Be Devided \n");  
}
```

break;

default:

```
printf("Invalid Choice \n");
```

break;

}

return 0;

}

The screenshot displays a C++ IDE with the source code of a 'Simple Menu Driven Calculator' on the left and its execution output in a terminal window on the right.

Source Code (Left):

```
1 #include <stdlib.h>  
2  
3 int main()  
4 {  
5     int choice;  
6     float no1,no2,result;  
7  
8     printf("Simple Menu Driven Calculator \n");  
9     printf("1. Addition \n");  
10    printf("2. Substraction \n");  
11    printf("3. Multipication \n");  
12    printf("4. Division \n");  
13    printf("Enter Your Choice [1-4]: \n");  
14    scanf("%d", &choice);  
15  
16    printf("Enter First Number ");  
17    scanf("%f", &no1);  
18    printf("Enter Second Number ");  
19    scanf("%f", &no2);  
20  
21    switch(choice)  
22    {  
23        case 1:  
24            result=no1+no2;  
25            printf("%.2f \n", result);  
26            break;  
27  
28        case 2:  
29            result=no1-no2;  
30            printf("%.2f \n", result);  
31            break;  
32  
33    }
```

Execution Output (Right):

```
"D:\New folder\12\20.exe"  
Simple Menu Driven Calculator  
1. Addition  
2. Substraction  
3. Multipication  
4. Division  
Enter Your Choice [1-4]:  
  
2  
Enter First Number 24  
Enter Second Number 54  
-30.00  
  
Process returned 0 (0x0)   execution time : 11.336 s  
Press any key to continue.
```

The IDE's status bar at the bottom shows various tools and logs, including Code::Blocks, Search results, Cccc, Build log, Build messages, CppCheck/Vera++, Cscope, Debugger, DoxyBlocks, and Fortran.

- 3) Create a text-based, menu-driven program that allows the user to choose whether to calculate the circumference of a circle, the area of a circle or the volume of a sphere. The program should then input a radius from the user, perform the appropriate calculation and display the result**

```
#include <stdio.h>

int main()
{
    int choice;

    double radius, circumference, area, volume;

    printf("Menu. \n");
    printf("1. Calculate Circumference of a Circle \n");
    printf("2. Calculate area of a Circle \n");
    printf("3. Calculate volume of a sphere \n");
    printf("Enter Your Choice [1-3]: ");
    scanf("%d", &choice);

    switch(choice)
    {
        case 1:
            printf("Enter the radius of the circle: ");
            scanf("%lf", &radius);
            circumference= 2 * 3.1415 * radius;
            printf("Circumference of the circle: %.2lf \n", circumference);
            break;

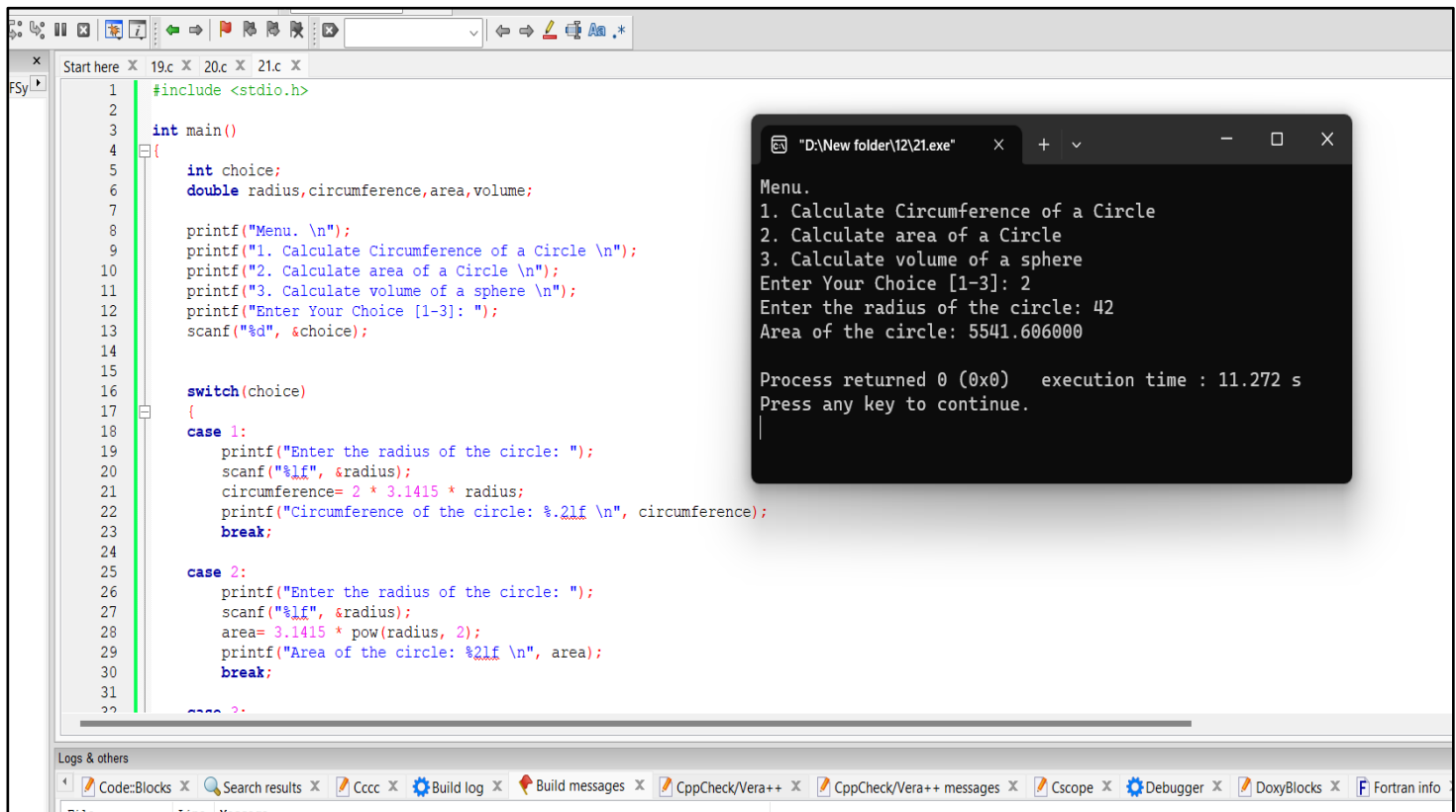
        case 2:
            printf("Enter the radius of the circle: ");
            scanf("%lf", &radius);
            area= 3.1415 * pow(radius, 2);
            printf("Area of the circle: %.2lf \n", area);
            break;
```

case 3:

```
printf("Enter the radius of the sphere: ");  
scanf("%2lf", &radius);  
volume=(4.0/3.0) * 3.1415 * radius * radius * radius;  
printf("Volume of the sphere: %2lf \n", volume);  
break;
```

default:

```
printf("Invalid Choice\n");  
break;  
}  
return 0;  
}
```



- 4) Write a C program to read a character from the user and determine whether the given letter is vowel or not. (Use a switch statement which also includes 'default' state).**

```
#include <stdio.h>

int main ()
{
    char letter;

    printf("Enter a character: ");
    scanf("%c", &letter);

    switch(letter)
    {
        case 'a':
            printf("Vowel Character");
            break;

        case 'A':
            printf("Vowel Character");
            break;

        case 'e':
            printf("Vowel Character");
            break;

        case 'E':
            printf("Vowel Character");
            break;

        case 'i':
            printf("Vowel Character");
            break;

        case 'I':
            printf("Vowel Character");
```

```

break;

case 'o':
    printf("Vowel Character");
break;

case 'O':
    printf("Vowel Character");
break;

case 'u':
    printf("Vowel Character");
break;

case 'U':
    printf("Vowel Character");
break;

default:
    printf("Not a Vowel Character");
break;
}

return 0;
}

```

```

1 #include <stdio.h>
2
3 int main()
4 {
5     char letter;
6
7     printf("Enter a character: ");
8     scanf("%c", &letter);
9
10    switch(letter)
11    {
12    case 'a':
13        printf("Vowel Character");
14        break;
15    case 'A':
16        printf("Vowel Character");
17        break;
18    case 'e':
19        printf("Vowel Character");
20        break;
21    case 'E':
22        printf("Vowel Character");
23        break;
24    case 'i':
25        printf("Vowel Character");
26        break;
27    }
28
29    return 0;
30 }

```

Terminal Output:

```

D:\New folder\12\22.exe
Enter a character: p
Not a Vowel Character
Process returned 0 (0x0)   execution time : 3.957 s
Press any key to continue.

```


5) Write a C program to enter month number and print total number of days in month using switch case. First assume that the given month belongs to a non-leap year

```
#include <stdio.h>

int main ()
{
    int monthno;
    printf("Enter a Month Number [1-12]: ");
    scanf("%d", &monthno);
    switch(monthno)

    {
case 1:
        printf("Month: January \n");
        printf("31 Days");
        break;

case 2:
        printf("Month: February \n");
        printf("28 Days");
        break;

case 3:
        printf("Month: March \n");
        printf("31 Days");
        break;

case 4:
        printf("Month: April \n");
        printf("30 Days");
        break;
```

case 5:

```
printf("Month: May \n");
```

```
printf("31 Days");
```

```
break;
```

case 6:

```
printf("Month: June \n");
```

```
printf("30 Days");
```

```
break;
```

case 7:

```
printf("Month: July \n");
```

```
printf("31 Days");
```

```
break;
```

case 8:

```
printf("Month: August \n");
```

```
printf("30 Days");
```

```
break;
```

case 9:

```
printf("Month: September \n");
```

```
printf("31 Days");
```

```
break;
```

case 10:

```
printf("Month: October \n");
```

```
printf("30 Days");
```

```
break;
```

case 11:

```
printf("Month: November \n");
```

```
printf("31 Days");
```

```
break;
```

case 12:

```
printf("Month: December \n");  
  
printf("30 Days");  
  
break;  
  
default:  
  
printf("Invalid Month \n");  
  
break;  
  
}  
  
}
```

The screenshot shows a C++ IDE with a source file and a console window. The source file contains a switch statement that takes a month number (1-12) as input and prints the month name and the number of days in that month. The console window shows the program's execution, where the user entered '4' for April, and the program correctly output 'Month: April' and '30 Days'.

```
1 #include <stdio.h>  
2  
3 int main()  
4 {  
5  
6     int monthno;  
7  
8     printf("Enter a Month Number [1-12]: ");  
9     scanf("%d", &monthno);  
10  
11     switch(monthno)  
12     {  
13     case 1:  
14         printf("Month: January \n");  
15         printf("31 Days");  
16         break;  
17     case 2:  
18         printf("Month: February \n");  
19         printf("28 Days");  
20         break;  
21     case 3:  
22         printf("Month: March \n");  
23         printf("31 Days");  
24         break;  
25     case 4:  
26         printf("Month: April \n");  
27         printf("30 Days");  
28         break;  
29     }  
30 }  
31  
32
```

Console Output:

```
"D:\New folder\12\23.exe"  
Enter a Month Number [1-12]: 4  
Month: April  
30 Days  
Process returned 0 (0x0)   execution time : 3.034 s  
Press any key to continue.
```