

Practical Number 04

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Areas covered	Selection control structures

If else and Switch Statements

Q1) 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 num;
    printf("Enter an integer: ");
    scanf("%d", &num);
    if (num % 2 == 0) {
        printf("%d is even.\n", num);
    } else {
        printf("%d is odd.\n", num);
    }
    return 0;
}
```

Re-write the above program using a switch statement instead of an If-Else statement!

```
#include <stdio.h>
int main() {
    int num;
    printf("Enter an integer: ");
    scanf("%d", &num);
    switch (num % 2) {
        case 0:
            printf("%d is even.\n", num);
            break;
        case 1:
            printf("%d is odd.\n", num);
            break;
        default:
            printf("Invalid input.\n");
            break;
    }
    return 0;
}
```

Q2) Write a simple menu driven calculator to perform (+ - / *) operations. (The program must display a menu to select the desired operator.)

```
#include <stdio.h>
int main() {
    char operator;
    double num1, num2, result;
    printf("Menu Driven Calculator\n");
    printf("Enter the operator (+, -, *, /): ");
    scanf(" %c", &operator);
    printf("Enter two numbers: ");
    scanf("%lf %lf", &num1, &num2);
    switch (operator) {
        case '+':
            result = num1 + num2;
            break;
        case '-':
            result = num1 - num2;
            break;
        case '*':
            result = num1 * num2;
            break;
        case '/':
            if (num2 != 0) {
                result = num1 / num2;
            } else {
                printf("Error: Cannot divide by zero.\n");
                return 1;
            }
            break;
        default:
            printf("Error: Invalid operator.\n");
            return 1;
    }
    printf("Result: %.2lf\n", result);
    return 0;
}
```

Q3) 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>
#define PI 3.14159
int main() {
    int choice;
    float radius;
    printf("Menu:\n");
```

```

printf("1. Calculate the circumference of a circle\n");
printf("2. Calculate the area of a circle\n");
printf("3. Calculate the volume of a sphere\n");
printf("Enter your choice (1/2/3): ");
scanf("%d", &choice);
switch (choice) {
case 1:
printf("Enter the radius of the circle: ");
scanf("%f", &radius);
printf("Circumference of the circle: %.2f\n", 2 * PI * radius);
break;
case 2:
printf("Enter the radius of the circle: ");
scanf("%f", &radius);
printf("Area of the circle: %.2f\n", PI * radius * radius);
break;
case 3:
printf("Enter the radius of the sphere: ");
scanf("%f", &radius);
printf("Volume of the sphere: %.2f\n", (4.0 / 3.0) * PI * radius * radius * radius);
break;
default:
printf("Invalid choice! Please select a valid option (1/2/3).\n");
return 1;
}
return 0;
}

```

Q4) 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 ch;
printf("Enter a character: ");
scanf(" %c", &ch); // Note the space before %c to consume any leading whitespace or
newline
switch (ch) {
case 'A':
case 'a':
case 'E':
case 'e':
case 'I':
case 'i':
case 'O':
case 'o':
case 'U':
case 'u':
printf("%c is a vowel.\n", ch);

```

```
break;
default:
printf("%c is not a vowel.\n", ch);
}
return 0;
}
```

Q5) 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 month;
printf("Enter the month number (1-12): ");
scanf("%d", &month);
switch (month) {
case 1:
printf("January has 31 days.\n");
break;
case 2:
printf("February has 28 days.\n");
break;
case 3:
printf("March has 31 days.\n");
break;
case 4:
printf("April has 30 days.\n");
break;
case 5:
printf("May has 31 days.\n");
break;
case 6:
printf("June has 30 days.\n");
break;
case 7:
printf("July has 31 days.\n");
break;
case 8:
printf("August has 31 days.\n");
break;
case 9:
printf("September has 30 days.\n");
break;
case 10:
printf("October has 31 days.\n");
break;
case 11:
printf("November has 30 days.\n");
break;
```

```
case 12:
printf("December has 31 days.\n");
break;
default:
printf("Invalid month number. Please enter a number between 1 and 12.\n");
}
return 0;
}
```