switch_1.c

```c
#include <stdio.h>

// This program demonstrates the use of a switch statement in C.

int main() {
    int number;

    printf("Enter an integer between 1 and 5: ");
    scanf("%d", &number);

    switch (number) {
        case 1:
            printf("You entered One.\n");
            break;
        case 2:
            printf("You entered Two.\n");
            break;
        case 3:
            printf("You entered Three.\n");
            break;
        case 4:
            printf("You entered Four.\n");
            break;
        case 5:
            printf("You entered Five.\n");
            break;
        default:
            printf("Invalid input! Please enter a number between 1 and 5.\n");
            break;
    }

    return 0;
}

/**
 * write the above code using if-else statements instead of switch-case.
 */

 /*

#include <stdio.h>

int main() {
    int number;

    printf("Enter an integer between 1 and 5: ");
    scanf("%d", &number);

    if (number == 1) {
        printf("You entered One.\n");
    } else if (number == 2) {
```

```
        printf("You entered Two.\n");
    } else if (number == 3) {
        printf("You entered Three.\n");
    } else if (number == 4) {
        printf("You entered Four.\n");
    } else if (number == 5) {
        printf("You entered Five.\n");
    } else {
        printf("Invalid input! Please enter a number between 1 and 5.\n");
    }

    return 0;
}
*/
```

switch_2.c

```c
#include <stdio.h>

// write a real world program that uses a switch statement in C.

int main() {
    int day;

    printf("Enter a day number (1-7): ");
    scanf("%d", &day);

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

    return 0;
}

/*
 * write the above code using if-else statements instead of switch-case.
*/

/*
include <stdio.h>

int main() {
    int day;

    printf("Enter a day number (1-7): ");
```

```
    scanf("%d", &day);

    if (day == 1) {
        printf("Monday\n");
    } else if (day == 2) {
        printf("Tuesday\n");
    } else if (day == 3) {
        printf("Wednesday\n");
    } else if (day == 4) {
        printf("Thursday\n");
    } else if (day == 5) {
        printf("Friday\n");
    } else if (day == 6) {
        printf("Saturday\n");
    } else if (day == 7) {
        printf("Sunday\n");
    } else {
        printf("Invalid day number!\n");
    }

    return 0;
}
*/
```

switch_5.c

```c
#include <stdio.h>

// write a program to check leap year using switch case in C.

int main() {
    int year;
    int isLeap;

    printf("Enter a year: ");
    scanf("%d", &year);

    // Determine if the year is a leap year
    if ((year % 4 == 0 && year % 100 != 0) || (year % 400 == 0)) {
        isLeap = 1; // Leap year
    } else {
        isLeap = 0; // Not a leap year
    }

    switch (isLeap) {
        case 1:
            printf("%d is a leap year.\n", year);
            break;
        case 0:
            printf("%d is not a leap year.\n", year);
            break;
        default:
            printf("Error determining if %d is a leap year.\n", year);
            break;
    }

    return 0;
}
```

switch_4.c

```c
#include <stdio.h>

// write a program to check the number is even or odd using switch case in C.

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("Error: %d is not a valid integer.\n", num);
            break;
    }

    return 0;
}
```

switch_3.c

```c
#include <stdio.h>

// write a program to check the grade of a student using switch case in C.

int main() {
    char grade;

    printf("Enter the grade (A, B, C, D, F): ");
    scanf(" %c", &grade);

    switch (grade) {
        case 'A':
            printf("Excellent!\n");
            break;
        case 'B':
            printf("Good job!\n");
            break;
        case 'C':
            printf("You passed.\n");
            break;
        case 'D':
            printf("You need to work harder.\n");
            break;
        case 'F':
            printf("Failed. Better luck next time.\n");
            break;
        default:
            printf("Invalid grade entered.\n");
            break;
    }

    return 0;
}


/*
* write the above code using if-else statements instead of switch-case.
*/

/*
#include <stdio.h>

int main() {
    char grade;

    printf("Enter the grade (A, B, C, D, F): ");
    scanf(" %c", &grade);

    if (grade == 'A') {
        printf("Excellent!\n");
    } else if (grade == 'B') {
```

```
        printf("Good job!\n");
    } else if (grade == 'C') {
        printf("You passed.\n");
    } else if (grade == 'D') {
        printf("You need to work harder.\n");
    } else if (grade == 'F') {
        printf("Failed. Better luck next time.\n");
    } else {
        printf("Invalid grade entered.\n");
    }

    return 0;
}
*/
```

leap_year.c

```c
#include <stdio.h>

int main() {
    int year;

    printf("Enter a year: ");
    scanf("%d", &year);

    if (year % 400 == 0) {
        printf("%d is a leap year.\n", year);
    }
    else if (year % 100 == 0) {
        printf("%d is NOT a leap year.\n", year);
    }
    else if (year % 4 == 0) {
        printf("%d is a leap year.\n", year);
    }
    else {
        printf("%d is NOT a leap year.\n", year);
    }

    return 0;
}

```

for_loop.c

```c
#include <stdio.h>

// print_numbers function prints numbers from 1 to n using a for loop

int main() {
    int n;
    // Prompt user for input
    printf("Enter a positive integer: ");
    scanf("%d", &n);
    // Print numbers from 1 to n
    for (int i = 1; i <= n; i++) {
        printf("%d\n", i);
    }

    return 0;
}

/*
* output example:
* Enter a positive integer: 5
* 1
* 2
* 3
* 4
* 5
*/
```

countdown.c

```c
#include <stdio.h>
// prints a countdown from 5 to 1 using a for loop
int main() {
    for (int i = 5; i >= 1; i--) {
        printf("%d\n", i);
    }
    return 0;
}

/*
* output example:
* 5
* 4
* 3
* 2
* 1
*/
```

for_loop_2.c

```c
#include <stdio.h>

// create a program that counts to 100 by tens
int main() {
    for (int i = 0; i <= 100; i += 10) {
        printf("%d\n", i);
    }
    return 0;
}

/*
* output example:
* 0
* 10
* 20
* 30
* 40
* 50
* 60
* 70
* 80
* 90
* 100
*/
```

for_loop_3.c

```c
#include <stdio.h>
// create a program that only print even numbers between 0 and 10 (inclusive)
int main() {
    /*
    for (int i = 0; i <= 10; i++) {
        if (i % 2 == 0) {
            printf("%d\n", i);
        }
    }
    */

    int i;
    for (i = 0; i <= 10; i = i + 2) {
     printf("%d\n", i);
    }

    return 0;
}

/*
* output example:
* 0
* 2
* 4
* 6
* 8
* 10
*/
```