

1.

```
main.c
1  #include <stdio.h>
2  #include <stdlib.h>
3
4  int main()
5  {
6      int i;
7      i = 1;
8      while (i <= 128) {
9          printf("%d ", i);
10         i *= 2;
11     }
12
13     return 0;
14 }
15
```

1 2 4 8 16 32 64 128

...Program finished with exit code 0
Press ENTER to exit console.

2.

```
main.c
5  {
6
7      int i;
8      printf("Enter value: ");
9      scanf("%d", &i);
10
11     /*c. do-while loop - regardless if the condition is met (i<10),
12     the value of the user input will be printed at least once.*/
13     do {printf("\nValue of i is %d", i);
14     }while (i<10);
15
16     return 0;
17 }
18
19
```

input

Enter value: 10

Value of i is 10

...Program finished with exit code 0
Press ENTER to exit console.

3.

```
main.c
1  #include <stdio.h>
2  #include <stdlib.h>
3
4  int main()
5  {
6      int i = 1; //declares data type and value
7
8      //executing for loop
9      for(; i<= 128; i*=2){
10         printf("%d ", i); //printing output in the terminal
11     }
12
13     return 0;
14 }
15
16
```

1 2 4 8 16 32 64 128

...Program finished with exit code 0
Press ENTER to exit console.

4.

```
main.c
1  #include <stdio.h>
2  #include <stdlib.h>
3
4  int main()
5  {
6      //declaring data types and value
7      int exponent;
8      int n = 1;
9      int power = 0;
10     printf("Enter exponent value: "); //prints instructions
11     scanf("%d", &exponent); //user input, indicating the nth term of the exponent
12     printf("\n    TABLE OF POWERS OF TWO\n");
13     printf("    n        2 to the n\n");
14
15     //for loop designed to calculate the value of 2 raise to n up to the nth term
16     for (int i = 0; i<=exponent; i++){ // declares initial value of i, condition to satisfy, and increment value
17         printf("    %d        %d\n", i, n); //printing the results
18         n*=2; //incrementing value of n
19     }
20 }
```

input

Enter exponent value: 8

```

TABLE OF POWERS OF TWO
n        2 to the n
0         1
1         2
2         4
3         8
4        16
5        32
6        64
7       128
8       256

...Program finished with exit code 0
Press ENTER to exit console.
```

5.

```
main.c
1  #include <stdio.h>
2  #include <stdlib.h>
3
4  int main()
5  {
6      //use input for number of days in a month and the day of the week to start with
7
8      int n, day, i; //declaring data type for variables in use input
9      printf("Enter number of days in month: ");
10     scanf("%d", &n);
11     printf("Enter the starting day of the week (1=Sun, 7=Sat): ");
12     scanf("%d", &day);
13
14     printf("\n"); //puts a space between instructions and output
15
16     i = 1; //declaring initial value of i.
17
18     /*program will only print output if
19     condition of valid number of days is met*/
20
21     //If the following conditions below are met, an error message will be printed in the terminal
22     if (((28 > n) || (n > 31)) || ((0 > day) || (day > 7))) { //utilization of logical operators should be appropriate
23         if (((28 > n) || (n > 31)) && ((0 < day) && (7 > day)))
24             printf("Invalid number of days in a month!"); //prints error message for valid days of the week but an invalid number of
25         else if ((28 < n < 31) && ((0 > day) || (7 > day)))
26             printf("Invalid day of the week!"); //prints error message for valid number of days in a month but an invalid day of the
27     }
```

input

Enter number of days in month: 31
Enter the starting day of the week (1=Sun, 7=Sat): 1

```

1  2  3  4  5  6  7
8  9  10 11 12 13 14
15 16 17 18 19 20 21
22 23 24 25 26 27 28
29 30 31

...Program finished with exit code 0
Press ENTER to exit console.
```