

1. **Output:** 1 2 4 8 16 32 64 128

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

```
C:\Users\Family\Desktop\as1.exe
1 2 4 8 16 32 64 128
Process returned 0 (0x0)   execution time : 0.062 s
Press any key to continue.
```

2. The do-while statement is not equivalent to the while and for statements.

```
1      #include <stdio.h>
2      int main(void){
3
4          int i = 1;
5
6          // while loop
7          while (i < 10){
8              printf("%d ", i);
9              i++;
10         }
11
12         printf("\n");
13
14         // for loop
15         for (i = 1; i < 10;){
16             printf("%d ", i);
17             i++;
18         }
19
20         printf("\n");
```

```

21
22 // do-while loop
23 do{
24     printf("%d ", i);
25     i++;
26 }while (i < 10);
27
28 return 0;
29 }

```

C:\Users\Family\Desktop\as2.exe

```

1 2 3 4 5 6 7 8 9
1 2 3 4 5 6 7 8 9
10
Process returned 0 (0x0)   execution time : 0.045 s
Press any key to continue.

```

3.

```

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

```

C:\Users\Family\Desktop\as3.exe

```

1 2 4 8 16 32 64 128
Process returned 0 (0x0)   execution time : 0.040 s
Press any key to continue.

```

4.

```

1 // program that calculates the power of two
2
3 #include <stdio.h>
4 int main(void) {
5
6     int exp, power = 1;
7
8     printf("Base: 2\n");
9     printf("Enter exponent: ");
10    scanf("%d", &exp);
11
12    while (exp != 0) {
13        power *= 2;           // power = power * 2
14        exp--;
15    }
16
17    printf("Result: %d\n", power);
18
19    return 0;
20 }

```

C:\Users\Family\Desktop\as4.exe

```

Base: 2
Enter exponent: 10
Result: 1024

Process returned 0 (0x0)   execution time : 3.827 s
Press any key to continue.

```

5.

```

1 #include <stdio.h>
2 int main(void) {
3
4     int days, start_day, i, j;
5
6     printf("Enter number of days in month: ");
7     scanf("%d", &days);
8
9     // checks whether the days entered are valid
10    if (days == 28 || days == 30 || days == 31) {
11        printf("Enter the starting day of the week (1=Sun, 7=Sat): ");
12        scanf("%d", &start_day);
13
14        // prints the blank days of the first week
15        for (i = 1; i < start_day; i++) {
16            printf(" ");
17        }
18    }

```

```

19 // prints the calendar numbers
20 for (j = 1; j <= days; i++, j++){
21     printf("%3d", j);
22     if (i % 7 == 0){
23         printf("\n");
24     }
25 }
26 }
27 else{
28     printf("\nInvalid input. Enter only a valid number of days.\n");
29 }
30
31 return 0;
32 }

```

C:\Users\Family\Desktop\as5.exe

```

Enter number of days in month: 31
Enter the starting day of the week (1=Sun, 7=Sat): 5
      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

```

```

Process returned 0 (0x0)   execution time : 7.176 s
Press any key to continue.

```

Github link: <https://github.com/pdramil/CMSC21/tree/main/Lecture%204/Assignments>