

1.) The output of the program is:

1 2 4 8 16 32 64 128

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

2.) The three loops execute similarly if the loops are the same. The only exception to this is when the loop condition is not met. Both the for and while loop will not execute the body code while the do-while loop will perform the code block under it once. This happens because both for and while loop first checks the condition of the loop before executing the code block embedded in it and if it does not match the condition it will not perform it. The do-while loop, however, first executes the code and then checks if it is still under the loop condition.

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

3.) The output of my program is:

1 2 4 8 16 32 64 128

```
#include <stdio.h>
int main(void)
{
    int i;
    for (i = 1; i <= 128; i *= 2) {
        printf("%d ", i);
    }
    return 0;
}
```

4.)

```
1  #include<stdio.h>
2
3  int main(void){
4      int power;
5      float answer=2;
6      printf("Input the power that you want 2 to be raised: ");
7      scanf("%d", &power);
8      if (power==0){
9          printf("2 raised to the power of 0 is equals to: 1");
10     }
11     else if (power>0){
12         while (power>1){
13             answer*=2;
14             power--;
15         }
16         printf("2 raised to the power of %d is equals to: %0.0f", power,answer);
17     }
18     else if (power<0){
19         power= abs(power);
20         while (power>1){
21             answer*=2;
22             power--;
23         }
24         answer=1/answer;
25         printf("2 raised to the power of %d is equals to: %0.4f", power,answer);
26     }
27 }
```

5.)

```
1  #include<stdio.h>
2
3  int main(void){
4      int days, start,i,j;
5      do{
6          printf("Input number of days in month: ");
7          scanf("%d", &days);
8          }while((days<0) || (days>32) || (days<28));
9
10     do{
11         printf("Input the starting day of the month (1=Sun,...,7=Sat):");
12         scanf("%d", &start);
13         }while((start<0) || (start>7));
14
15     for(i=1;i<days;i++){
16
17         for(j=0; ((i<days) && (j<6)); j++){
18
19             while(start!=0){
20                 printf(" ");
21                 start--;
22                 j++;
23             }
24
25             if(i<10){
26                 printf("%d ",i);}
27
28
29             else{
30                 printf("%d ",i);}
31                 i++;
32
33             }
34
35         printf("\n");
36     }
37 }
```

Github link: <https://github.com/JorgeGuiller/CMSC21/tree/main/Lecture4/Assignment>