

1.

The output is 1 2 4 8 16 32 64 128

```
C: > Users > ASUS > Documents > Jobert > School > First Year > CMSC 21 > CMSC 21 > Lecture4 > Assignments > C as1.c > ...
1  #include <stdio.h>
2
3  int main(void){
4
5      int i;
6      i = 1;
7      while(i <= 128){
8          printf("%d ", i);
9          i *= 2;
10     }
11     return 0;
12 }
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

Windows PowerShell
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PS C:\Users\ASUS> cd "c:\Users\ASUS\Documents\Jobert\School\First Year\CMSC 21\CMSC 21\Lecture4\Assignments"
1 2 4 8 16 32 64 128
PS C:\Users\ASUS\Documents\Jobert\School\First Year\CMSC 21\CMSC 21\Lecture4\Assignments>

2. The do while loop is not equivalent because it will run once even if i is not less than 10

```
C: > Users > ASUS > Documents > Jobert > School > First Year > CMSC 21 > CMSC 21 > Lecture4 > Assignments > C as2.c > main(void)
1  #include <stdio.h>
2
3  int main(void){
4
5      int i = 10;
6      while (i<10)
7      {
8          printf("i is %d\n", i);
9          i++;
10     }
11     i=10;
12     for (; i< 10;){
13         printf("i is %d\n", i);
14         i++;
15     }
16     i=10;
17     do
18     {
19         printf("i is %d\n", i);
20         i++;
21     } while (i <10);
22 }
```

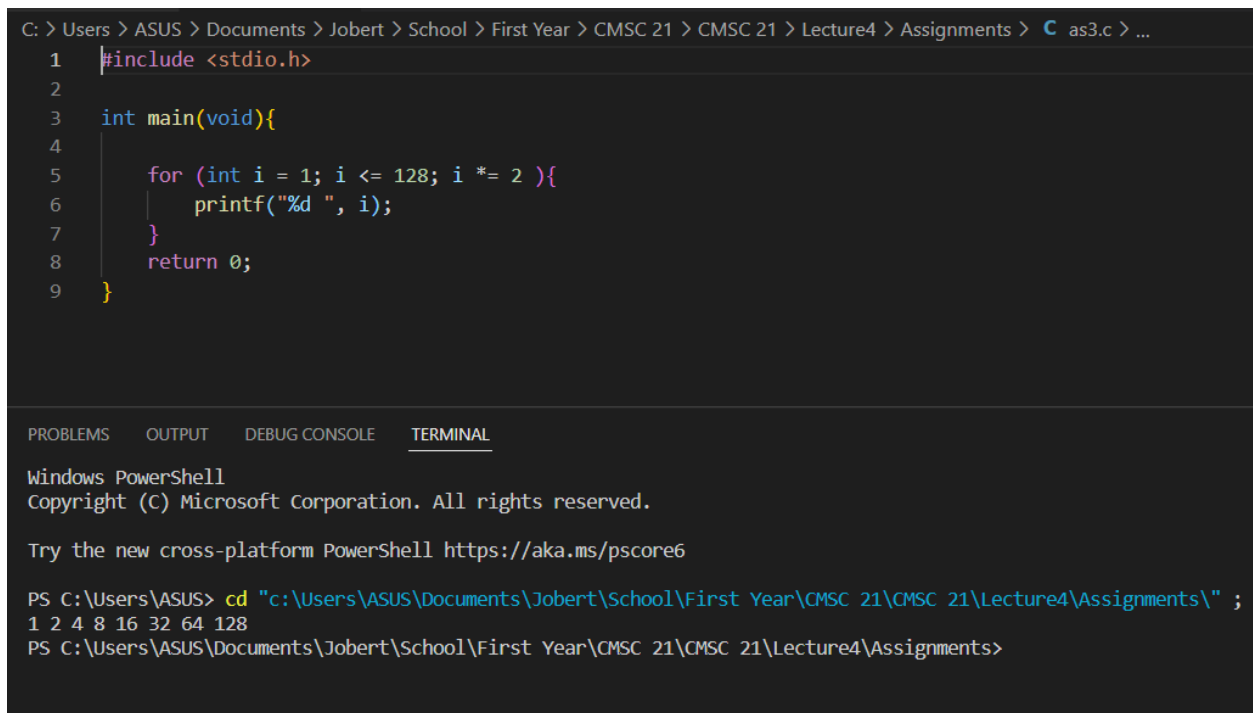
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PS C:\Users\ASUS> cd "c:\Users\ASUS\Documents\Jobert\School\First Year\CMSC 21\CMSC 21\Lecture4\Assignments" ; if (\$?) { i = 10 }
PS C:\Users\ASUS\Documents\Jobert\School\First Year\CMSC 21\CMSC 21\Lecture4\Assignments>

3.



The image shows a Visual Studio Code editor window with a C program named `as3.c` open. The program is a simple loop that prints powers of 2 from 1 to 128. Below the editor, the `TERMINAL` tab is active, showing the command prompt output of the program's execution.

```
C: > Users > ASUS > Documents > Jobert > School > First Year > CMSC 21 > CMSC 21 > Lecture4 > Assignments > as3.c > ...  
1  #include <stdio.h>  
2  
3  int main(void){  
4  
5      for (int i = 1; i <= 128; i *= 2 ){  
6          printf("%d ", i);  
7      }  
8      return 0;  
9  }
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

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PS C:\Users\ASUS> cd "c:\Users\ASUS\Documents\Jobert\School\First Year\CMSC 21\CMSC 21\Lecture4\Assignments\" ;
1 2 4 8 16 32 64 128
PS C:\Users\ASUS\Documents\Jobert\School\First Year\CMSC 21\CMSC 21\Lecture4\Assignments>

4.

```
C: > Users > ASUS > Documents > Jobert > School > First Year > CMSC 21 > CMSC 21 > Lecture4 > Assignments > C as4.c > ...
1  #include <stdio.h>
2
3
4  int main(void){
5
6      int n;
7      printf("\nEnter n:");
8      scanf("%d", &n);
9
10     printf("\n\nTABLE OF POWERS OF TWO\n\n");
11     printf(" n      2 to the n\n");
12     printf("----\n");
13
14     for (int i = 0; i <= n; i++){
15         int answer = 1;
16
17         for(int j = i; j > 0; j--){
18             answer *= 2;
19         }
20         if (i == 0){
21             answer = 1;
22         }
23         printf("%-6d%d\n", i, answer);
24     }
25     return 0;
26 }
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

Enter n:2

TABLE OF POWERS OF TWO

n	2 to the n
0	1
1	2
2	4

PS C:\Users\ASUS\Documents\Jobert\School\First Year\CMSC 21\CMSC 21\Lecture4\Assignments> █

5.

Code

```
C:\Users\ASUS\Documents\Jobert\School\First Year\CMSC 21\CMSC 21\Lecture4\Assignments> C as5.c > ...
1  #include <stdio.h>
2  #include <stdlib.h>
3
4  int dayValidation(int min, int max){
5
6      while(1){
7          int input;
8          printf("\nInput:");
9          scanf("%d", &input);
10
11          if(input < min || input > max){
12              printf("\n\nInvalid input!\n\nEnter a number between %d and %d.\n\n", min, max);
13          }else{
14              return input;
15          }
16      }
17  }
18
19  int main(void){
20      int days, startingDay;
21      printf("Enter number of days in a month");
22      days = dayValidation(28, 31);
23
24
25      printf("Enter the starting day of the week (1=Sun, 7=Sat)");
26      startingDay = dayValidation(1, 7);
27
28      // loop for spacing the starting day
29      int j = 1;
30      while (j < startingDay){
31          printf(" ");
32          j++;
33      }
34
35      for (int i = 1; i <= days; i++)
36      {
37          printf("%2d ", i);
38      }
```

```
18
19 int main(void){
20     int days, startingDay;
21     printf("Enter number of days in a month");
22     days = dayValidation(28, 31);
23
24
25     printf("Enter the starting day of the week (1=Sun, 7=Sat)");
26     startingDay = dayValidation(1, 7);
27
28     // loop for spacing the starting day
29     int j = 1;
30     while (j < startingDay){
31         printf(" ");
32         j++;
33     }
34
35     for (int i = 1; i <= days; i++)
36     {
37         printf("%2d ", i);
38
39         if(i%7 == (8-startingDay)%7){
40             printf("\n");
41         }
42     }
43
44     return 0;
45
46 }
```

ERROR MESSAGES

```
PS C:\Users\ASUS> cd "c:\Users\ASUS\Documents\Jobert\School\First Year\  
Enter number of days in a month  
Input:0  
  
Invalid input!  
Enter a number between 28 and 31.  
  
Input:27  
  
Invalid input!  
Enter a number between 28 and 31.  
  
Input:32  
  
Invalid input!  
Enter a number between 28 and 31.  
  
Input:-2  
  
Invalid input!  
Enter a number between 28 and 31.  
  
Input:█
```

```
Try the new cross-platform PowerShell https://aka.ms/powershell

PS C:\Users\ASUS> cd "c:\Users\ASUS\Documents\Jobert\School\First Year\CMSC 21
Enter number of days in a month
Input:29
Enter the starting day of the week (1=Sun, 7=Sat)
Input:0

Invalid input!

Enter a number between 1 and 7.

Input:-2

Invalid input!

Enter a number between 1 and 7.

Input:8

Invalid input!

Enter a number between 1 and 7.

Input:
```

CORRECT INPUT

```
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PS C:\Users\ASUS> cd "c:\Users\ASUS\Documents\Jobert\School\First Year\CMSC 21\CMSC 21\Lecture4\Assignments>
Enter number of days in a month
Input:31
Enter the starting day of the week (1=Sun, 7=Sat)
Input:2
  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
PS C:\Users\ASUS\Documents\Jobert\School\First Year\CMSC 21\CMSC 21\Lecture4\Assignments>
```