

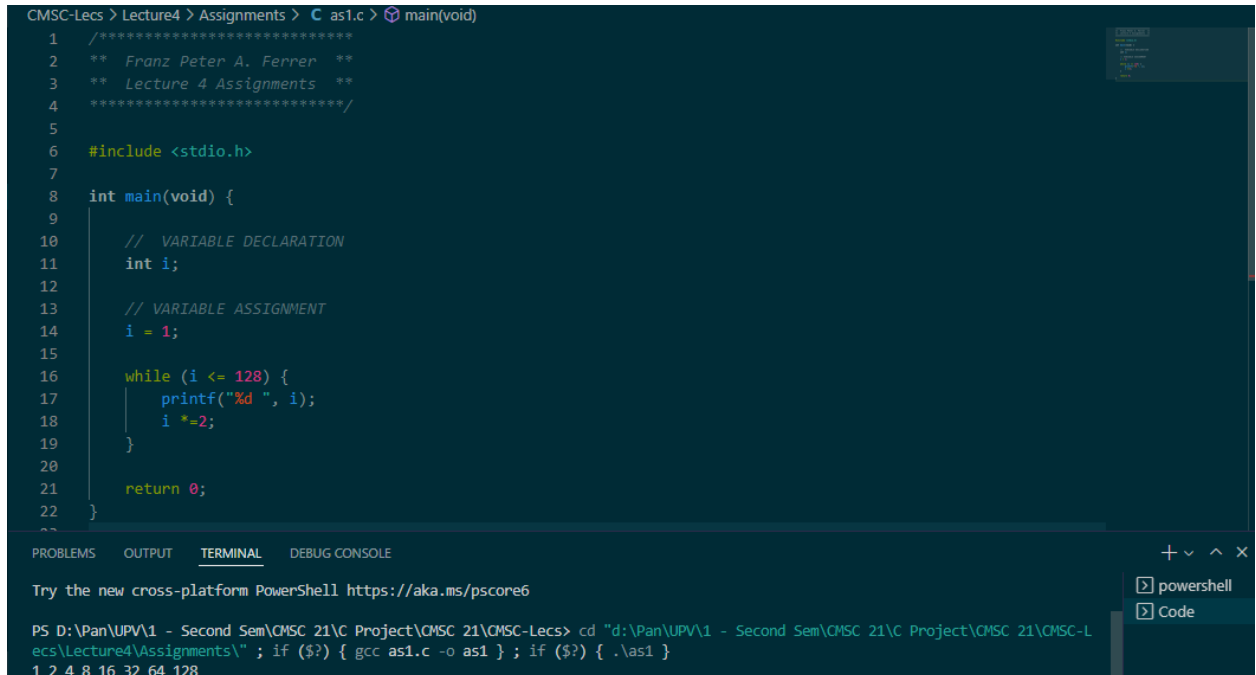
Franz Peter A. Ferrer

Loop/Repetition Statements

Lecture 4 Assignments

1. The output of the program is:

1 2 4 8 16 32 64 128



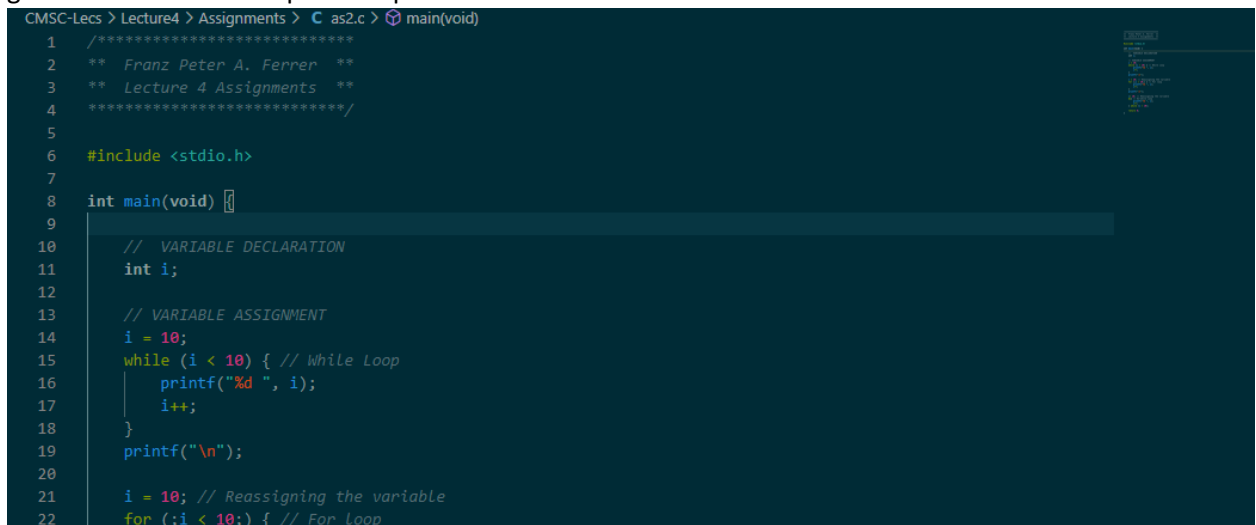
```
CMSC-Lecs > Lecture4 > Assignments > C as1.c > main(void)
1  /*****
2  **  Franz Peter A. Ferrer  **
3  **  Lecture 4 Assignments  **
4  *****/
5
6  #include <stdio.h>
7
8  int main(void) {
9
10     // VARIABLE DECLARATION
11     int i;
12
13     // VARIABLE ASSIGNMENT
14     i = 1;
15
16     while (i <= 128) {
17         printf("%d ", i);
18         i *= 2;
19     }
20
21     return 0;
22 }
```

Try the new cross-platform PowerShell <https://aka.ms/pscore6>

PS D:\Pan\UPV\1 - Second Sem\CMSC 21\C Project\CMSC 21\CMSC-Lecs> cd "d:\Pan\UPV\1 - Second Sem\CMSC 21\C Project\CMSC 21\CMSC-Lecs\Lecture4\Assignments\" ; if (\$?) { gcc as1.c -o as1 } ; if (\$?) { .\as1 }

1 2 4 8 16 32 64 128

2. The following statement that is not equivalent to the other two is the do-while loop statement since the condition is performed at the end of the loop rather than the beginning which guarantees that the loop will be performed at least once.



```
CMSC-Lecs > Lecture4 > Assignments > C as2.c > main(void)
1  /*****
2  **  Franz Peter A. Ferrer  **
3  **  Lecture 4 Assignments  **
4  *****/
5
6  #include <stdio.h>
7
8  int main(void) {
9
10     // VARIABLE DECLARATION
11     int i;
12
13     // VARIABLE ASSIGNMENT
14     i = 10;
15     while (i < 10) { // While Loop
16         printf("%d ", i);
17         i++;
18     }
19     printf("\n");
20
21     i = 10; // Reassigning the variable
22     for (; i < 10;) { // For Loop
```

```
22     for (;i < 10;) { // For Loop
23         printf("%d ", i);
24         i++;
25     }
26     printf("\n");
27
28     i= 10; // Reassigning the variable
29     do{ // Do-while Loop
30         printf("%d ", i);
31         i++;
32     } while (i < 10);
33
34     return 0;
35 }
36
```

PROBLEMS OUTPUT **TERMINAL** DEBUG CONSOLE

PS D:\Pan\UPV\1 - Second Sem\CMSC 21\C Project\CMSC 21\CMSC-Lecs\Lecture4\Assignments> cd "d:\Pan\UPV\1 - Second Sem\CMSC 21\C Project\CMSC 21\CMSC-Lecs\Lecture4\Assignments\" ; if (\$?) { gcc as2.c -o as2 } ; if (\$?) { .\as2 }

10

PS D:\Pan\UPV\1 - Second Sem\CMSC 21\C Project\CMSC 21\CMSC-Lecs\Lecture4\Assignments>

3.

CMSC-Lecs > Lecture4 > Assignments > C as3.c > main(void)

```
1  /**
2  **  Franz Peter A. Ferrer
3  **  Lecture 4 Assignments
4  **  */
5
6  #include <stdio.h>
7
8  int main(void) {
9
10     // For Loop
11     for (int i = 1; i <= 128; i *= 2) {
12         printf("%d ", i);
13     }
14
15     return 0;
16 }
```

PROBLEMS OUTPUT **TERMINAL** DEBUG CONSOLE

Try the new cross-platform PowerShell <https://aka.ms/pscore6>

PS D:\Pan\UPV\1 - Second Sem\CMSC 21\C Project\CMSC 21\CMSC-Lecs\Lecture4\Assignments> cd "d:\Pan\UPV\1 - Second Sem\CMSC 21\C Project\CMSC 21\CMSC-Lecs\Lecture4\Assignments\" ; if (\$?) { gcc as3.c -o as3 } ; if (\$?) { .\as3 }

1 2 4 8 16 32 64 128

PS D:\Pan\UPV\1 - Second Sem\CMSC 21\C Project\CMSC 21\CMSC-Lecs\Lecture4\Assignments>

4.

```
CMSC-Lecs > Lecture4 > Assignments > C as4.c > main(void)
1  /**
2  **  Franz Peter A. Ferrer
3  **  Lecture 4 Assignments
4  **  */
5
6  #include <stdio.h>
7
8  int main(void) {
9
10     // VARIABLE DECLARATION
11     int n, i, j;
12
13     // USER INPUT
14     printf("Enter n: ");
15     scanf("%d", &n);
16
17     // RESULT STATEMENT
18     printf("n    2 to the n");
19     printf("\n--  ----- \n");
20
21     //RESULT OUTPUT
22     /*Initiliaze variable i from 0,
23     Loops as long as variable i is not greater than the user input
24     Updates the i by incrementing it by 1*/
25     for(i = 0, j = 1; i <= n; i++, j*=2) { // i = exponent, j = 2^n
26         printf("%d \t", i);
27         printf("%d \n", j);
28     }
29
30     return 0;
31 }
```

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

```
Enter n: 10
n    2 to the n
--  -----
0      1
1      2
2      4
3      8
4     16
5     32
6     64
7    128
8    256
9    512
10   1024
PS D:\Pan\UPV\1 - Second Sem\CMSC 21\C Project\CMSC 21\CMSC-Lecs\Lecture4\Assignments>
```

powershell
Code

5.

```
CMSC-Lecs > Lecture4 > Assignments > C as5.c > main(void)
1  /******
2  **  Franz Peter A. Ferrer  **
3  **  Lecture 4 Assignments  **
4  *****/
5
6  #include <stdio.h>
7
8  int main(void) {
9
10     // VARIABLE DECLARATION
11     int days, start;
12
13     // USER INPUT for number of days
14     do {
15         printf("Enter number of days in month: ");
16         scanf("%d", &days);
17         if(days > 31 || days < 28) {
18             printf("Invalid input! Must only be within 28-31.\n");
19         }
20     } while (days > 31 || days < 28); //Loops if input is not within 28-31
21     //USER INPUT for the starting day
22     do {
23         printf("Enter the starting day of the week\n");
24         printf("(1=Sun, 7=Sat): ");
25         scanf("%d", &start);
26         if(start < 1 || start > 7){
27             printf("Invalid input! Must only be within 1-7.\n");
28         }
29     } while (start < 1 || start > 7); //Loops if input is not within 1-7
30
31     //RESULT STATEMENT
32     printf("\nSun\tMon\tTue\tWed\tThu\tFri\tSat\n");
33     /*Initilize variable i from 1 and j from 0,
34     Loops as long as variable i is not greater than the user input
35     Updates variable i and j by incrementing it by 1*/
36     for (int i = 1, j = 0; i <= days; i++, j++) {
37         /*If starting day is not Sunday(1)
38         prints a space accordingly to the
39         chosen starting day*/
40         while (start != 1) {
41             printf("\t");
42             start--;
43             j++;
44         }
45         /*Prints a newline every seventh iteration
46         in order to match the 7 days of the calendar*/
47         if (j == 7) {
48             printf("\n");
49             j = 0;
50         }
51         printf("%d\t", i);
52     }
53
54     return 0;
55 }
```

```
PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS D:\Pan\UPV\1 - Second Sem\CMSC 21\C Project\CMSC 21\CMSC-Lecs\Lecture4\Assignments> cd "d:\Pan\UPV\1 - Second Sem\CMSC 21\C Project\CMSC 21\CMSC-Lecs\Lecture4\Assignments"; if ($?) { gcc as5.c -o as5 }; if ($?) { .\as5 }
Enter number of days in month: 27
Invalid input! Must only be within 28-31.
Enter number of days in month: -1
Invalid input! Must only be within 28-31.
Enter number of days in month: 31
Enter the starting day of the week(1=Sun, 7=Sat): 8
Invalid input! Must only be within 1-7.
Enter the starting day of the week(1=Sun, 7=Sat): 3

Sun   Mon   Tue   Wed   Thu   Fri   Sat
    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 D:\Pan\UPV\1 - Second Sem\CMSC 21\C Project\CMSC 21\CMSC-Lecs\Lecture4\Assignments>
```