Loop/Repetition Statements

Lecture 4 Assignments

1.

```
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
```

Output: 1 2 4 8 16 32 64 128

```
C:\Users\briana jade\Documents\C\Ass 4\as1.c\bin\Debug\as1.c.exe
1 2 4 8 16 32 64 128
Process returned 0 (0x0)    execution time : 0.047 s
Press any key to continue.
```

2.

```
1    #include <stdio.h>
2    #include <stdlib.h>
3
4    int main()
5    {
6        int i;
7        i = 9;
8
9        while(i < 10){
10           printf("Value of %d\n", i);
11           i++;
12       }
13       for (i =9; i < 10; i++){
14           printf("Value of %d\n", i);
15       }
16       do{
17           printf("Value of %d\n", i);
18           i++;
19       }
20       while (i < 10);
21       return 0;
22   }
23
```

Output:

```
Value of 9
Value of 9
Value of 10

Process returned 0 (0x0)    execution time : 0.038 s
Press any key to continue.
```

Letter c is not equivalent to the other two which is the do while (i < 10) statement. Since do while statement will first do what is int the statement so it will increment first then reads the condition on the second that's why it gave a different value or output compared to the while statement and for loop.

3.

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

Output:


```
"C:\Users\briana jade\Documents\C\ass 5\as3.c\bin\Debug\as3.c.exe"
1 2 4 8 16 32 64 128
Process returned 0 (0x0)    execution time : 0.041 s
Press any key to continue.
```

4.

```c
1    // code for the 2 powers of n
2    #include<stdio.h>
3    int main () {
4        // declared variables
5        int power;
6        int num;
7
8        printf("\n n    2 to the n");
9        printf("\n---    ----------");
10
11       power = 1; // initialized power
12       for (num = 0; num < 11; ++num) { // initialized number for 0, if number is less than 11 then it will increment
13         if (num == 0) // if num is 0 it will just print 1 for the power
14            power = 1;
15         else
16            power = power * 2; // if num is not zero the num will be mutiply to 2
17         printf("\n%2d    %8d", num, power);
18       }
19       printf("\n");
20       return 0;
21    }
22
```

Output:


```
"C:\Users\briana jade\Documents\C\ass 5\as4.c\bin\Debug\as4.c.exe"

 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

Process returned 0 (0x0)    execution time : 0.031 s
Press any key to continue.
```

5.

```c
int main()
{
    int days, start, week, calendar_num; // declares variable

    printf("\nEnter number of days in month: ");
    scanf("%d", &days);

    printf("Enter starting day of the week (1=Sun, 7=Sat): ");
    scanf("%d", &start);
    printf("\n");

    // checkers to validate whether the days and months entered are invalid
    if (days >= 32 || days < 1  || days == 0) {
        printf("Invalid numbers");
    }
    else if (start < 1 || start > 7){
        printf("Invalid numbers");
    }
    else if (start >1 && start < 8){
        for (week = 1; week < start; week++) { // if week is less than the starting week 1-7 then i will increment then it will print out spaces of the first week
            printf("   ");
    }

    /* prints the calendar numbers */
    for (calendar_num = 1; calendar_num <= days; week++, calendar_num++) {
        printf("%3d", calendar_num);
        if (week % 7 == 0)
            printf("\n");
    }
    }

    printf("\n\n");

    return 0;
}
```

Output:

```
"C:\Users\briana jade\Documents\C\ass 5\as5.c\bin\Debug\as5.exe"

Enter number of days in month: 31
Enter starting day of the week (1=Sun, 7=Sat): 3

          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 : 55.801 s
Press any key to continue.
```

For Checkers:

```
"C:\Users\briana jade\Documents\C\ass 5\as5.c\bin\Debug\as5.exe"

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

Invalid numbers


Process returned 0 (0x0)   execution time : 5.147 s
Press any key to continue.
```