

Loop/Repetition Statements

Lecture 4 Assignments

Manejo, Kzlyr Shaira

1.

```
1  #include <stdio.h>
2
3  int main (void){
4
5      int i;
6
7      i = 1;
8      while (i <= 128){
9          printf("%d", i);
10         i *= 2;
11     }
12
13     return 0;
14
15 }
```

Output:

```
1248163264128
```

2. Letter c is not equivalent to the other two statements because the do-while loop is evaluated prior to checking the conditional expression. Hence, even if the value of i is greater than 10, the code in letter c will still run.

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

Output:

```
c) i = 11
```

3.

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

Output:

```
1248163264128
```

4.

```
1  #include <stdio.h>
2
3  int main (void){
4
5      int n, result, i;
6
7      printf("Enter the exponent/power: ");
8      scanf ("%d", &n);
9
10     i = 0;
11     result = 1;
12
13     while (i<n){
14         result *= 2;
15         i += 1;
16     }
17
18     printf ("2 to the power of %d is %d", n, result);
19
20     return 0;
21 }
```

Output:

```
Enter the exponent/power: 5
2 to the power of 5 is 32
```

5.

```

1  #include <stdio.h>
2
3  int main (void){
4
5      int num, day, i;
6
7      printf ("Enter the number of days in a month: ");
8      scanf ("%d", &num);
9
10     if (num > 27 && num <= 31){
11         printf ("Enter the starting day of the week: ");
12         scanf ("%d", &day);
13
14         //prints the spaces at the start of the calendar
15         for (i = 0; i < day ; i++){
16             printf (" ");
17         }
18
19         //prints the days/numbers of the calendar
20         for (i=1; i<=num ; i++){
21             printf ("%2d ", i);
22
23             //creates a new line for every week in the month
24             if ((day+i-7)%7==0)
25                 printf("\n");
26         }
27     }
28
29     //if the input of the user is invalid
30     else {
31         printf("Invalid Input!");
32     }
33
34     return 0;
35 }

```

Output:

- If the input of the user is valid:

```

Enter the number of days in a month: 31
Enter the starting day of the week: 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

```

- If the input of the user is invalid:

```

Enter the number of days in a month: 27
Invalid Input!

```