# Lab: Sequence, selection, and iteration

1. [seq] Write a program that outputs your name.
2. [seq] Write a program that outputs the seasons.
3. [seq] Write a program that outputs a random number between 1 and 10.
4. [sel – switch] Write a program that outputs a random month and its number of days.
5. [Sel + logic + test] Write a program that reads a constant year value – e.g., const YEAR = 1957, then outputs if that is a leap year or not. The algorithm is: if it’s exactly divisible by 4 then it is a leap year. If it’s divisible by exactly 100 then it isn’t unless it’s exactly divisible by 400, then it is. Think of some sensible test values for your leap year program and justify your choice.
6. [iteration – while] Generate and output a continuous series of random numbers in the range 0 to 99 until you output a random number which is the same as the previous one – then stop. E.g., if you output: 20,95,22,75,75 your program would exit after printing the second 75
7. [iteration – mod operator] Generate and output a continuous stream of random numbers from 0 to 99 until it generates an even number. Output the even number then stop. Run a few times and observe the results.
8. [iteration – for] Lucky Dip. Create a set of random lottery numbers (6 random numbers between 1 and 59). Don’t worry for now if they are not unique. We will improve some of these programs later.
9. [iteration – for] Generate 'n' values of a times table of value 't'. For example, if you set t to 5 and n to 3, it generates:

1 x 5 = 5

2 x 5 = 10

3 x 5 = 15

n should be a random value between 5 and 20

t should be a random value between 2 and 20

Run your application several times and observe the output.