* For each one of the exercises 35, 36, 37, 38, 39, 40, 44, 45, 46, 47 in the questions document associated with this practical project:
  + Create a file for the exercise and name it according to the exercise number. Example file name format: ex36.txt. Then, include your work in the file:
  + Complete the analysis
  + Write the pseudocode
  + Construct a trace table

1. Write an algorithm that calculates the sum of all the integers contained (inclusively) between two positive integer limits entered by the user. The program reads the smallest limit first.  
   Example: the sum of the integers between 5 and 10, inclusively.

1. Create four algorithms, each displaying the corresponding one of the following sequences:  
   1. 5 10 15 20 25 30 35 40
   2. 3 5 7 9 11 13 15
   3. 80 70 60 50 40 30 20
   4. 1 2 6 24 120 720

1. Write an algorithm that reads a positive integer ( > 0 ) and determines whether it is a prime number. (Hint: try dividing the number by the numbers coming before it.) Validate the input.

1. Write an algorithm that displays a table for converting Celsius units into Fahrenheit units. The table should display all of the values from –40 to 40 degrees Celsius, at increments of 5 degrees. The conversion formula is:
2. Write a program that calculates the average of 1000 grades. The program asks the user for each of the grades.

40 – Write a program that reads 1000 numbers and determines the largest and the smallest.

1. You just won a million dollars! You decide to invest $500,000 in a term deposit for a period of 5 years. The annual interest rate is 10%, and the interest is added to the principal sum each year (compound interest). How much will your savings be worth in 5 years?
   1. Make the algorithm with specified number (internal data).
   2. Generalize for any amount, any duration, and any interest rate.

1. Write an algorithm that displays the first 100 numbers of the Fibonacci sequence. This sequence begins with the numbers 1, 1, 2, 3, 5, 8, …, where each new number in the sequence can be found by adding the two previous numbers in the sequence.

1. Write a program that displays all the prime numbers from 1 to 50,000.

1. (\*) Write a program that reads the grades for the exams and assignments in a course including 2 exams and 2 assignments. The program should be able to adapt to the conditions of the course. More precisely:

* The program should read the number of students in the course.
* For each of the four grades, ask the user what the weight of the grade is.  
  In other words, how much is the grade worth as a percentage of the final grade for the course?
* The program should validate that the total of the four weights given is indeed equal to 100.
* Then, for each student, the program should read the student’s four grades (each out of 100). Verify that the values entered are between 0 and 100. Then calculate the final course grade for each student.
* The program should display whether the student passes or fails the course. A student passes if they achieve 60 or greater.
* Finally, the program should display the average of all the students’ final course grades.