

Exercise 1:

In this exercise you will write matrix manipulation library that provides 3 functions to handle square matrices of size $d \times d$ where d is a constant.

1. Launch the terminal
2. Create a new directory with the name "Lab04" inside "CSC215"
3. Write the C file "mat.c" that defines the functions:
 - a. `fill_matrix`: takes a square matrix of size $d \times d$ and reads its elements from the keyboard
 - b. `transpose`: takes two matrices `t` and `s` of size $d \times d$ and fills `s` with the transpose of `s`
 - c. `print_matrix`: takes a matrix of size $d \times d$ and prints it to the screen in rows and columns
 - d. BONUS: `multiply`: takes two matrices `m1` and `m2` of size $d \times d$ and prints their matrix product
4. You can always test your code against compilation errors using `gcc`. 3 points

Exercise 2:

To expose the library functions so they can be used by other programs you will write a header file for it.

1. Write the file "mat.h" that:
 - a. declares the matrix size as a preprocessor constant.
 - b. declares prototypes for all of mat.c functions
2. Make sure that your header file is protected against repetitive and circular inclusion. 1 points

Exercise 3:

1. Write the program "test.c" that uses that library mat.c to:
 - a. reads a matrix and prints it to the screen
 - b. transpose the matrix and prints the result to the screen.
2. Compile and run the program. 1 points

Exercise 4:

Write a suitable makefile for your program. 2 points

Lab assignment: 3 points

Write a C program assignment.c that calculates the average of a group of 4 test scores, where the lowest score in the group is dropped.

Your program should use the following functions:

- Function `Avg` that calculates and displays the average of the three highest scores.
This function should be called just once by `main`, and should be passed the four scores.
- Function `findLowest` that finds and returns the lowest of the four scores passed to it.
It should be called by `Avg`, which uses the function to determine which of the four scores to drop.