Homework 2 Due:20/11/2022

Q1 A static memory is given in order to optimize the memory usage of the code. The static memory needs to be used for multiple matrices (their data and their size).

- Use a `#define` statement named `MAT_CAP` for the amount of storable matrices.
- Use a `#define` statement named `MAT_SIZE_LEN` for the row and col limit.
- `float mem[]` represents the static memory.
- `int mat_count` represents the matrix count.

Implement the following functions,

- [15p]`void mem_dump()`: prints the whole memory to the console.
- [15p]`void mat_dump()`: prints each matrix to the console.
- [20p]`void mat_push(int m,int n,float* data)`: adds a matrix to the memory if capacity not full.
- [20p]`void mat_pop()`: removes the last added matrix from the memory and places zeros.
- [15p]`void mat_add()`: adds the last two matrices, removes the two matrices and places the resulting matrix.
- [15p]`void mat_substract()`: substracts the last two matrices, removes the two matrices and places the resulting matrix.

in a single file.

- Submit a single `*.c` file to NINOVA. Other file types will not be accepted nor graded.
- The given main function is not going to be submitted, only the necessary implementation needs to be submitted.
- Your submission will be compiled with a tester `main.c` file. Your code needs to compile without error, or your grade will be zero.
- Each functionality will be tested and added to your grade.
- Late submissions will be deduced 10p for each day late.
- Cheating is not allowed, once cheating is detected all involved submissions will be graded zero.

```c
int main()
{
    float mat[4]={2,2,2,2};
    mat_push(2,2,&mat[0]);
    float mat2[4]={1,2,3,4};
    mat_push(2,2,&mat2[0]);
    mem_dump();
    mat_substract();
    mat_dump();

    return 0;
}
```

main.c

The console is given as:

```
Memory:
2.000 2.000 2.000 2.000 2.000 2.000 1.000 2.000 3.000 4.000 2.000 2.000
Matrix :1
1.000000 0.000000
-1.000000 -2.000000
```

The console output is given for illustration purposes, your code needs to be generic in order to be able to wok with different sized matrices.