CS 211 Data Structures and Algorithms Lab
Aug -- Nov, 2019
Assignment 10
Total Marks: 10
Due on 16th November

The objective of this assignment is to implement Extended Euclidean algorithm.

Command-line argument:
Your program should receive two integers as command-line arguments. For example, a typical run of your program can be ./a.out 8 13. It is guaranteed that both the numbers are non-negative and at least one of them is non-zero.

Task
Implement Extended Euclidean algorithm to find the GCD of the two input numbers a and b given as command-line arguments and also to find the integers x and y such that ax+by = GCD(a,b). Your program should output to stdout three numbers GCD(a,b), x, and y where the numbers are separated by a single space. The output should be in a single line.

For example, the output of ./a.out 8 13 would be **1 5 -3**

Submission and Evaluation

- The main file of your program should be named as <roll no>.<extension>, where roll no. specifies your roll no. and the extension depends on the language you choose (Usage of C/C++ is mandatory for this assignment). Ex: 180040001.c
- Test well before submission. If the first number in the output line is the GCD of the two numbers then you obtain 5 marks. If the next two numbers are x and y such that ax+by is GCD then you obtain 5 marks. Note that a is the first of the two given numbers and b is the second given number.
- If your program has only a single source file, please submit the file as it is. If your program has multiple source files, please submit your code as a zip file where the name of the zip file should be your roll number. It is important that you follow the input/output conventions exactly (including the naming scheme) as we may be doing an automated evaluation. There will be a penalty of 10% (on the mark you deserve otherwise) if you do not follow the naming conventions exactly.
- Follow some coding style uniformly. Provide proper comments in your code.
- Submit only through moodle. Submit well in advance. Any hiccups in the moodle/internet at the last minute is never acceptable as an excuse for late submission. Submissions through email or any other means will be ignored.
- Acknowledge the people (other than the instructor and TA) who helped you to solve this assignment. The details of the help you received and the names of the people who helped you (including internet sources, if applicable) should come in the beginning of the main file as a comment. Copying others' programs and allowing others to copy your program are serious offences and deserving penalty will be imposed if found.
- **There is only one evaluation for this assignment. It is due on 16th November. Submission done after 16th November is not considered for the evaluation.**