CS222: Assignment 6 - Modular arithmetic and Extended Euclid's algorithm

1. Submission deadline: Sunday, 11 April at 11:59 pm.
2. Follow good coding practices to gain more marks.
3. No copying among the students or from the Internet or any other source.
4. The assignment can be submitted in groups of size ≤ 3.
5. Submit a `.cpp` file and a `.pdf` file that contains the time complexity analysis and output.
6. Write the names and roll numbers of the students at the top of each file.
7. The files should be called

   `extendedEuclid_firstRollNumber_secondRollNumber_thirdRollNumber.cpp`,

   `extendedEuclid_firstRollNumber_secondRollNumber_thirdRollNumber.pdf`,
8. The pdf should contain the output obtained when each program was run.
9. Anusha is the TA for this assignment.

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1. (15 points) Write a recursive program that takes a and b as input from the user and outputs $\gcd(a, b)$ and the integers x, y such that $\gcd(a, b) = ax + by$. The output should be clearly understandable. Example:

   `Input the two numbers:` 3 2.

   `The gcd of` 3 `and` 2 `is` 1.

   $1 = (1) * 3 + (-1) * 2$.

   In the pdf file, write the time analysis and sample output on 21 and 14.