Introductory Tasks | Getting Started

Complete the following tasks in each of the categories and record your submission in a properly formatted document. Also add relevant GitHub/GitLab links to the document alongside each coding tasks, explaining your approach in no more than two lines.

- ## Linux

  Head over to Bandit, an OverTheWire wargame and complete till level 15. Make sure you save the password for each level in the document to save the progress.

- ## Programming

For the programming assignment, complete the following handpicked challenges from Codeforces. Submissions are expected to be in Python language. Include your codeforces user profile in the document with a short writeup on your submission.

1. 1031A
2. 1030A
3. 1095A
4. 1102A
5. 1061A
6. 1064A
7. 1096A
8. 965A
9. 1208A
10. 160A
11. 71A
12. 1A
13. 339A
14. 263A
15. 705A
16. 82A
17. 96A
18. 112A
19. 282A

20. 50A

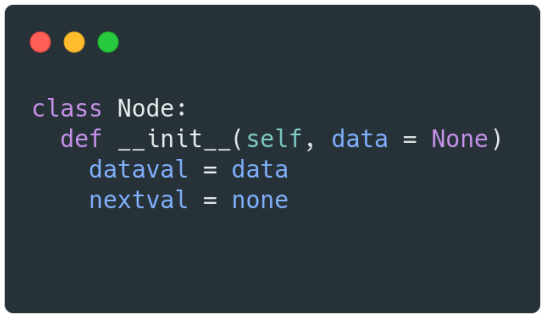
- ## Algorithms

  Implement the following algorithms in Python/C++

  a. Selection Sort
  b. Bubble Sort
  c. Merge Sort
  d. Binary Search
  e. Check for Balanced Parentheses matching using Stack
  f. Check for existence of cycle in Linked List

- ## Data Structures

Create Classes for the following data structures in Python. You may start with creating a Node class with attributes **dataval** and **nextval.** A Node class may look like this for a basic Linked List.



```
class Node:
  def __init__(self, data = None)
    dataval = data
    nextval = none
```

  a. LInked List
  b. Doubly Linked List
  c. Circular linked List
  d. Stack
  e. Queues
  f. De-Queue

- ## Field Related Tasks

  Complete one of the three following tasks set according to your preference of the category you are interested in.

  a. Cryptography
     - Implement basic attacks against weak RSA cryptosystem:
       - Weak prime factors
       - Wiener's attack
       - Fermat's factorization
       - Small exponent attack
     - Complete Set 1 from The Cryptopals Crypto Challenges

  b. Web
     i. Implement a basic Shopping cart.

  c. Android
     i. Create a basic Tic-Tac-Toe application.