COL1000: Introduction to Programming

Grand Finale

Reminders

- I am available tomorrow from **4 pm to 6 pm** (in Bharti 419) and again on **Monday 4 pm to 6 pm**

- **I will release the Wednesday's class video (20 minutes) on effective use of GenAI by tomorrow (Nov 15) AM**

Revision

- Work on types and scopes

- **Mathematical functions** (try both with recursion and tail-recursion)

  - Eg: Integer Square Root, Power-FastPow, GCD, etc.

- **Understand data containers in depth**

  - Lists, Strings, Pairs, Sets, Dictionaries — solve again earlier solved questions with now these containers and argue why your solution is better or worse!

- **Revisit Functions**

  - Particularly, higher order functions — problems such as **accumulators**, or the ones that use **lambda functions, closures,** etc.

Revision

- **Algorithms**

  - Sorting, Searching, Traversal (may be through backtrack)

  - Data structure manipulations

  - Primes, (extended) GCD

  - Numerical Computations

    - Matrices, Vectors, Points, Lines

- **Combine Algorithms with File I/O**

- Practice specification articulation, Debugging

Revision

- Remember

  - **Programming = reasoning + design + testing**

  - **Functions** are essential tools for **absraction**

  - You should have **mastery in control-flow logic**

  - Expert ability to **choose the right data containers**

  - **Specification & Debugging is a mindset — develop it!**

Out of Sight, Out of Mind

- **Keep practicing**

  - Look up algorithmic problems (Competitive Programming is one way)

  - Join clubs - such as ACES-ACM, BlockSoc, DevClub etc.

    - With a goal to pickup **impactful** projects

- Take up extra courses on NPTEL, Coursera, EdX

  - On Algorithms, Systems Development, IoT, AI, WHATNOT!

- **Stay Connected:** Write to me occasionally!

Call For Able Hands!

- **I need good programmers**

  - Look up https://cerify.ai

  - My TedX talk: https://www.youtube.com/watch?v=Sl8JsVySIZA&t=247s

- **Reach out to me once the grades are out!**

Thank you!
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