

Assignment-01 Computational Thinking

Description:

Pick any non-trivial problem statement from your computational thinking course and ask genAI to solve it. Iterate upon its solution to apply our principles of clean code.

Computational Thinking Problem:

Input: Scores of students; n students; m subjects

Each line is m marks – all are non-zero

The marks are unique across each subject; that is no two students get the same mark in the same subject.

if each mark of a student S is greater than or equal to the corresponding mark of T, then we say $S > T$

if each mark of a student S is less than the corresponding mark of T, then we say $S < T$

if some marks of S are greater and some are lesser we say that they are uncomparable, denoted by $A \# B$

Of course if $A > B$ and $B > C$ then $A > C$

Write a program that reads the input and outputs the smallest number of lines of the form $A > B$ or $A \# B$ to represent the final status completely.

That is the program should not output $A > C$ if $A > B$ and $B > C$ are output

Approaching GPT

1. Asked GPT about computational thinking problems, it's approach towards solving these kinds of problems.
2. Shared the question with GPT and asked it to summarize the question, essentially tried to know if it understood or not.
3. Asked GPT to not write the code immediately but to understand how to approach the problem, what parameters are to be considered, different functions to be included and most importantly how is the input processed and passed as a parameter.
4. Based on the description I asked GPT to proceed with code. It immediately generated code with bugs without taking any of the above mentioned requirements.
5. Asked GPT to first write a function that takes input and it is later passed to another function which converts into a data structure - dictionary.

6. The algorithm is then implemented as a function and later the above two functions are integrated.
7. Lastly, I asked GPT to refine the code multiple times to reduce redundant and repeated comparisons.
8. Both recursive and iterative codes are generated and worked with sample testcases given by me and GPT.