**Report on cse 425 Assignment**

**Section: 2**

**Group members**

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**Introduction:**

This report covers an assignment on writing search programs on a given dataset of light, air quality, sound, humidity and dust measurement of different cities. The search result shows data of different cities by day , month or year wise. We wrote same search program in three different programing language, which are Python, Unix shell Script and Java.

Program will ask user to choose between three types of search method

· Search by year

· Search by month

· Search by day

After selecting method user has to give the year, month, or day as an input to view desire result.

While doing the assignment we noticed the difference in design features and design issues among python ,java and bash shell script

Design Features:

Python :

a. Short, simple and very precise syntax.

b. Since python is an Interpreted language it took more time than bash but still efficient.

c) Python is well structured language and has a built in csv module which helped reduce human effort.

Java:

**a)** Moderately short and somewhat simple syntax.

**b)** Less powerful than bash in terms of efficiency but still efficient.

**c)** All the logic behind the code was created manually using arrays and accessed using built in ( .contains() ) method.

Bash Shell Script:

a) Short, simple and precise syntax.

b) Powerful and efficient with least time deficiency

c) Used grep access and retrieve data.

Time complexity:

For time complexity of search program is a O(n) in terms of Python , java and shell script. Each three programing language will give the same time complexity. Big- O n order because any search algorithm will take order n running times.

Design Issues:

Python:

The design issue with python is that we are using built in functionalities like the csv module and we are also using the ( in ) operator, and no matter how easy it is to access and view data, it restricts our ability to make better custom searching algorithm from scratch, there are ways to create better custom algorithms but Python has a few limitations.

Java:

With Java we used the ( .contains ) method to access and view data from the array we created and because of this there has been a time deficiency and the fact that there is an array to be accessed is creating a deficiency, although the code for Java can be improved by creating a better algorithm to access and retrieve data because java is easier to customize.

Bash Shell Script:

For the given task Bash doesn’t seem to show any design issues apart from the fact that it’s limited to Unix based systems. But for this specific task bash is readable, writable and customizable.