

IC 250 Lab 2

Introduction

Environmental engineers and economists use weather and climate models to predict weather variables (temperature, pressure, and rainfall) at different geographical locations. These model predictions once made are validated against known weather data. In this assignment, you'll be writing programs on a real-world dataset concerning monthly rainfall for a year across different districts of Himachal Pradesh (see *Monthly_Rainfall_Himachal.txt*). Your program is likely to be helpful to weather researchers at IIT Mandi and elsewhere.

Problem

This assignment has two questions. Question 1 is compulsory and Question 2 is optional with possibility of getting a bonus.

1. Write a C program that reads from the given file "*Monthly_Rainfall_Himachal.txt*" and stores the data in a 2D array. *Monthly_Rainfall_Himachal.txt* contains information about the rainfall (in mm) in a month at a certain district in Himachal Pradesh.

After the file has been stored in the 2D array, please make a C program to answer the following questions:

- a) During which month the rainfall was highest in KINNAUR?
- b) Which district had the highest rainfall in the month of September?
- c) What is the average rainfall for the month of July across all districts?
- d) What is the average rainfall in UNA across the year?

In general, your program should be menu driven and request the name of the district and/or month of the year from the user in order to execute the requirements listed in points a) to d) above.

2. **[Optional Bonus]** Using the data from *Monthly_Rainfall_Himachal.txt* in the 2D array, please print a list that displays class-intervals for rainfall values and counts the number of rainfall values that fall within a particular class-interval.

Example: The output will look like the following:

Class-Interval (mm)	Number of Rainfall Values (Count)
00-100	9
100-200	11
200-300	12
...	...