

Computer Programming, Assignment 2

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Suresh Purini

1. 100 (or any N) students took a course on economics. The final marks (out of 100) of all the students is provided via keyboard. If the input marks does not fall in the range 0 to 100, you should print an error and exit the program by displaying suitable error message. Solve the following problems by writing appropriate programs.
 - (a) If the pass mark is ≥ 35 , what is pass percentage?
 - (b) What is the mean, variance and standard deviation of the class?
 - (c) Compute the number of students falling within one standard deviation, two standard deviations and the rest.
 - (d) What are the maximum and minimum marks?
 - (e) Create an histogram with ranges $[0, 9], [10, 19], \dots, [99, 100]$.
2. There is a hotel with 100 floors and 32 rooms on each floor. All the rooms are occupied by a single male or female. Read this occupancy information via keyboard.
 - (a) Compute the percentage of males and females living in the hotel by visiting all the rooms.
 - (b) Report the percentage of males and females on each floor.
 - (c) Find the floor with maximum number of males.
 - (d) Is it possible to redistribute all the occupants so that any floor is occupied by only male or female?
 - (e) **Challenge Problem:** Solve this problem using atmost 400 bytes of memory. You can use few more bytes like 20 to 30 bytes for temporary storage.