Assignment No. 6
Computer Organisation - CS220

Group A and Group B

1. The objective of this assignment is to implement bucket sort for floating point numbers in both **C and MIPS assembly language**. We generally use bucket sort when the set of inputs are uniformly distributed over a range.

Algorithm 1 Sort a set of floating point numbers using bucket sort

Require: Input: $arr[]$ is an array of unsorted p floating point numbers, n is the number of buckets where $n > 0$.
Require: Output: $bucket[]$ is an array with sorted p floating point elements.
1. Create n empty buckets.
2. Do for each array element $arr[i]$:
2a. ..... Insert $arr[i]$ into $bucket[n * array[i]]$.
3. Sort individual buckets using insertion sort.
4. Concatenate all sorted buckets.

Test Data: { 0.897, 0.565, 0.656, 0.1234, 0.665, 0.3434, 0.1126, 0.554, 0.3349, 0.678, 0.3656, 0.9989 };
Instruction:

- You can write the code with your group partner before coming to the lab.
- Please bring your laptop to run the code in QTSPIM. One laptop for each group would be enough.
- No hard-coding is allowed.
- The TAs will be checking the output of the code for some other test cases.
- This time, you also have to upload the code (both C and asm) in HelloIITK in .c and .asm format. No other format will be accepted. If any group does not upload their codes, they will not get any marks even if they show the output in the lab.
- It is recommended that you do not copy from other group.
- The deadline to upload the code in HelloIITK is: 16th March, 2023.