**IT301 – Parallel Computing**

Assignment – 2

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1. Program 1
   1. Observation – The variable "x" is shared between all the threads and so it keeps incrementing without being reset to the initial value as all the threads are accessing the same variable (same address) and not a copy of it. But sometimes the value stays the same. This happens as there is no synchronization between the read and write of the values.

Graphical user interface, text

Description automatically generatedText

Description automatically generated

1. Program 2
   1. Graphical user interface, text, application

      Description automatically generatedObservation – As we can see here, private(x) initializes the value of x to 0 or a garbage value and performs the subsequent operations on the privately initialized x.
   2. Graphical user interface, text, application

      Description automatically generatedObservation – As we can see here, firstprivate(x) initializes the value of x to the value it had when it encountered the parallel construct and performs the subsequent operations on the privately initialized x.

Since in both modes the variable was private, hence it makes no changes the original variable outside the parallel block.

1. Programming Exercise
   1. Observation – In the program we are parallelly computing the sum of a[i] & b[i] and storing the result in c[i]. We first set the number of threads and then ask the user how many elements should be present in the array. After that we split the array into chunks wherein each chunk is processed by each thread.
   2. Code



Text

Description automatically generated