Started on	Saturday, 27 April 2024, 4:23 PM
State	Finished
Completed on	Saturday, 27 April 2024, 4:39 PM
Time taken	16 mins 20 secs
Grade	**3.00** out of 3.00 (**100**%)

Question 1

Correct

Mark 3.00 out of 3.00

Assuming the Gauss-Seidel parallel implementation on a distributed memory machine shown in the video with:

- Row-wise distribution of the matrix to P processors where each processor gets n/P consecutive rows;

- Task definition = Block of n/P consecutive rows by c columns, i.e. each processor executes several fine grain tasks, each working on a submatrix within the segment owned by the processor;

- An iteration of the inner loop has an associated cost T_{body}.

Match each contribution to the parallel execution time on P processors (T_p) with the appropriate expression.

$T_p = T_{calculations} + T_{communications}$

In the video: $T_{communications} = T_{overheads}$ We could also call it $T_{datasharing}$

Notation: Since the section for defining answers does not allow the usage of subscripts and superscripts,

- The underscore "_" in the answers is used for introducing a subscript.
- The circumflex "^" in the answers is used for introducing a superscript.

Number of lower boundaries (L) transferred	P-1 ✔	Minut 1:15
Cost of transferring one block of the Upper boundary (U)	(t_s + c x t_w) ✔	Minut 3:24
T_{calc} =	((n/P x c) x t_body) x (n/c + P - 1) ✔	
T_U =	(t_s + c x t_w) x (n/c + P-2) ✔	
$T_{communications}$ =	T_L + T_U ✔	
T_L =	(t_s + n x t_w) ✔	

Your answer is correct.

The correct answer is:
Number of lower boundaries (L) transferred → P-1,

Cost of transferring one block of the Upper boundary (U) → (t_s + c x t_w),

T_{calc} = → ((n/P x c) x t_body) x (n/c + P - 1),

T_U = → (t_s + c x t_w) x (n/c + P-2),

$T_{communications}$ = → T_L + T_U,

T_L = → (t_s + n x t_w)