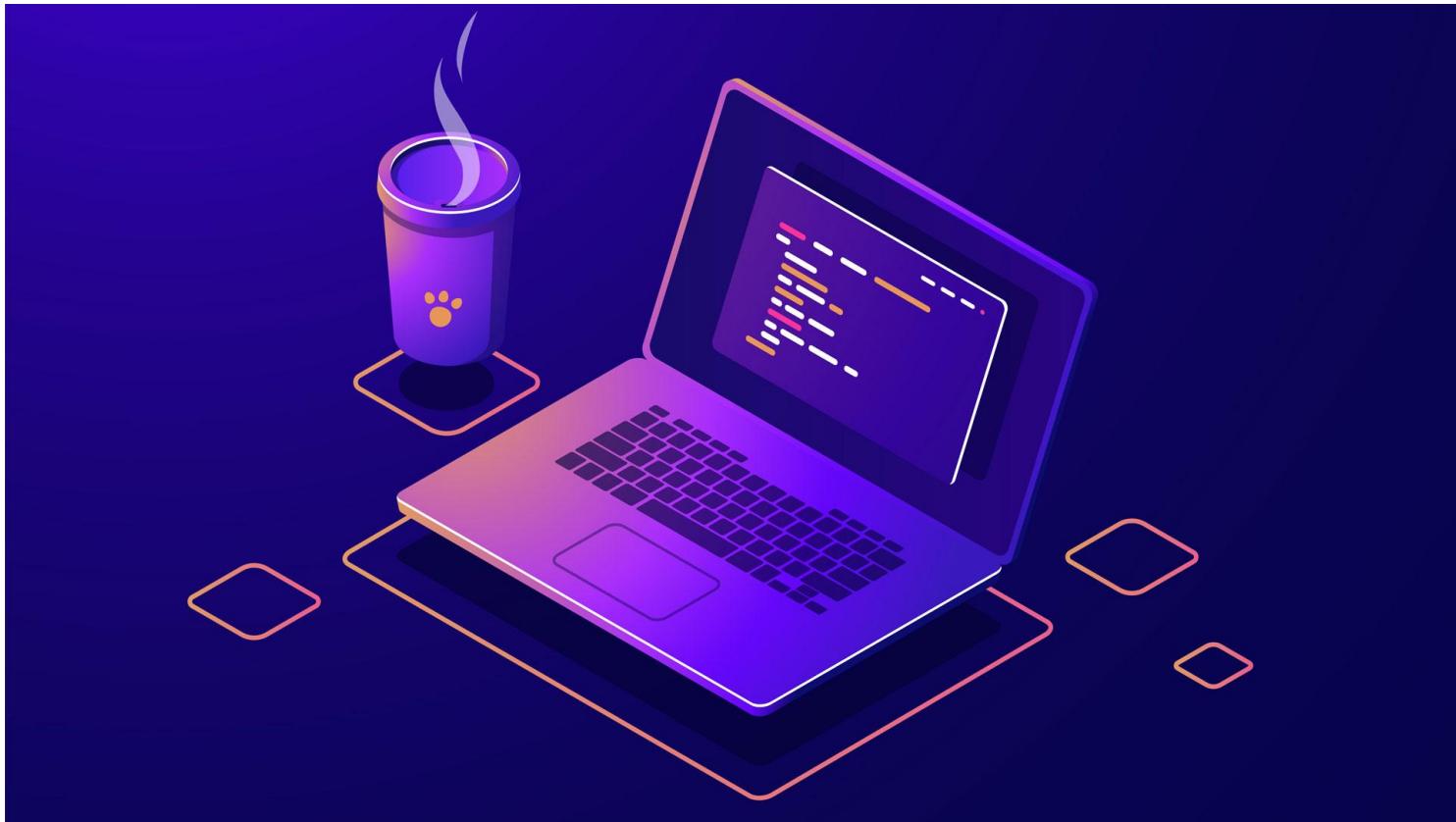
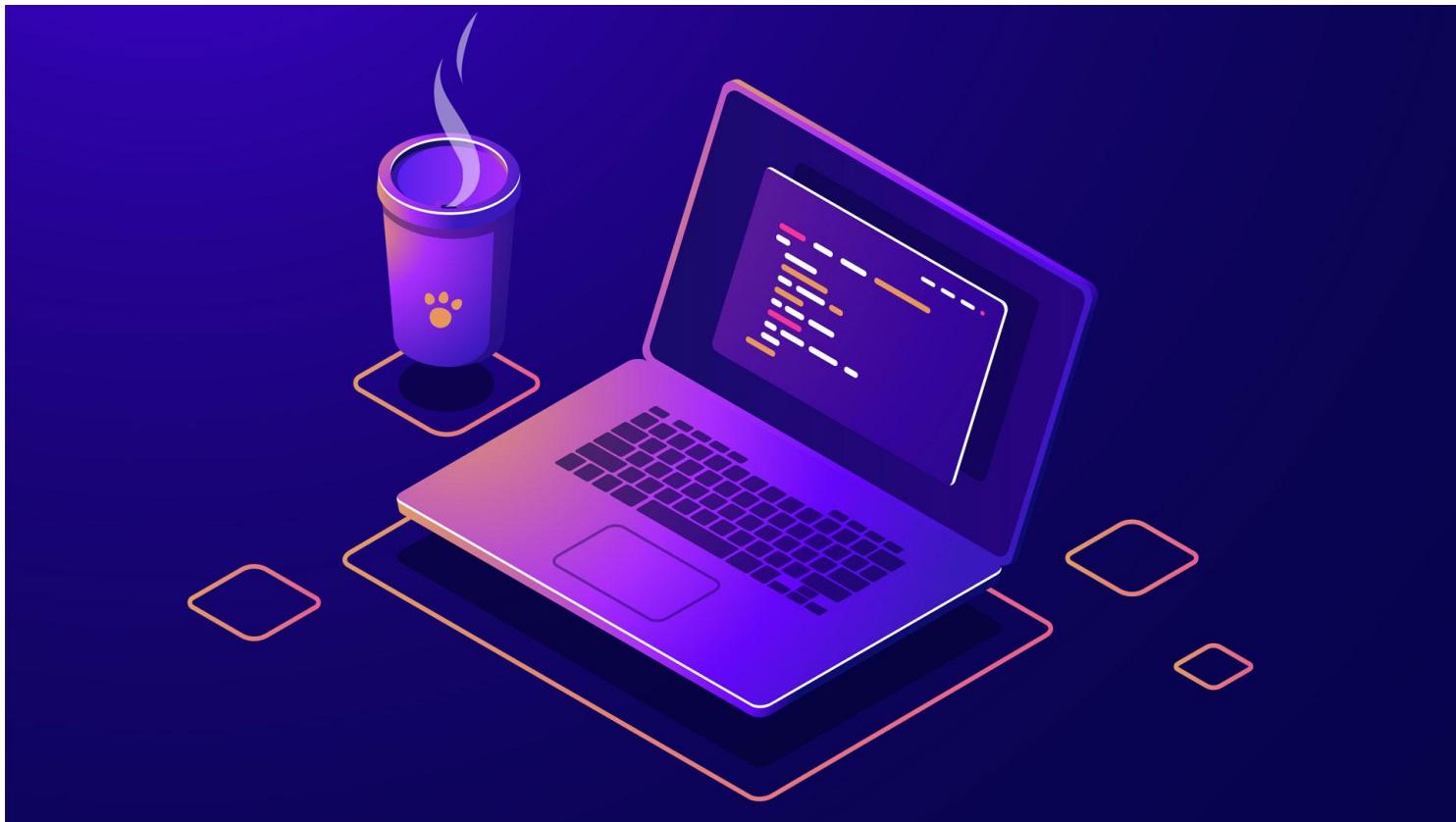


Parallelism Fundamentals Problems



Problem 1



Problem 1

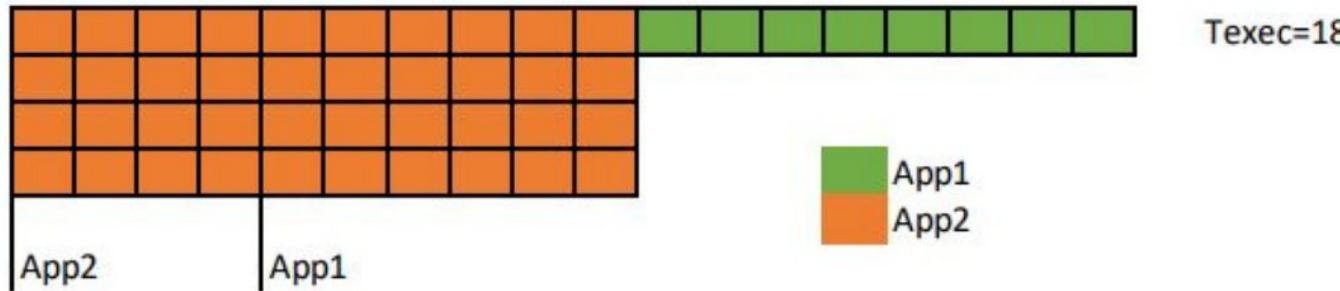


1. Assume we want to execute two different applications in our parallel machine with 4 processors: application $App1$ is sequential; $App2$ is parallelised defining 4 tasks, each task executing one fourth of the total application. The sequential time for the applications is 8 and 40 time units, respectively. Assuming: that $App1$ starts its execution at time 4 and $App2$ starts at time 0, draw a time line showing how they will be executed if the operating system:
 - (a) Does not allow multiprogramming, i.e. only one application can be executed at the same time in the system.
 - (b) Allows multiprogramming so that the system tries to have both applications running concurrently, each application making use of the number of processors is able to use.
 - (c) The same as in the second case, but now $App2$ is parallelised defining 3 tasks, each task executing one third of the total application.



Point a)

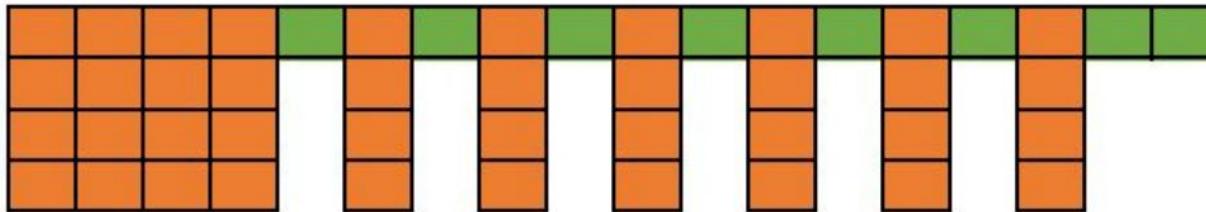
a)





Point b)

b)



$T_{exec}=18$



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