

(3) (10 points) Recall that the execution state of an SJAVA program is defined to be a stack of function states. Further, recall that this is encoded as a string called `execState` by the universal SJAVA program `interpreter`. (See Section 5 of the Computability handout for more details.) Define $\mathcal{L}_{\text{SPACE}}$ to be the set of all ordered triples $\langle M, x, C \rangle$ such that in the execution of `interpreter`(M,x), the string `execState` never exceeds length C . Either prove that there exists a SJAVA program that decides $\mathcal{L}_{\text{SPACE}}$, or prove that $\mathcal{L}_{\text{SPACE}}$ is undecidable.

IDK