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Midterm 1 S2
DFS

stack: [ ]

[s]

s[v, u, w]

v[u, w]

[w, u, w]

w[u, w]

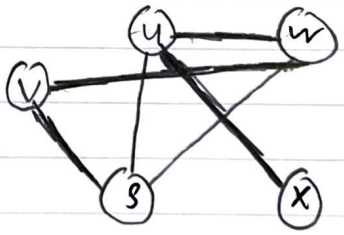
[u, u, w]

u[u, w]

[x, u, w]

x[u, w]

- This is an example of how DFS will vertices using the starting vertex S, when it has a choice of order.



- DFS will not produce the set of T as an output of DFS because DFS by definition will traverse the longest path first. The set of $T = \{sv, sw, su, ux\}$, contains vertices that are not the longest path. No matter the ordering of vertices when pushed onto the stack, T cannot be an output, because even if we were to visit $s \to u \to x$, that would mean that the edge $\{u, w\}$ would exist in T, but it does not due to the definition of a stack being LIFO.