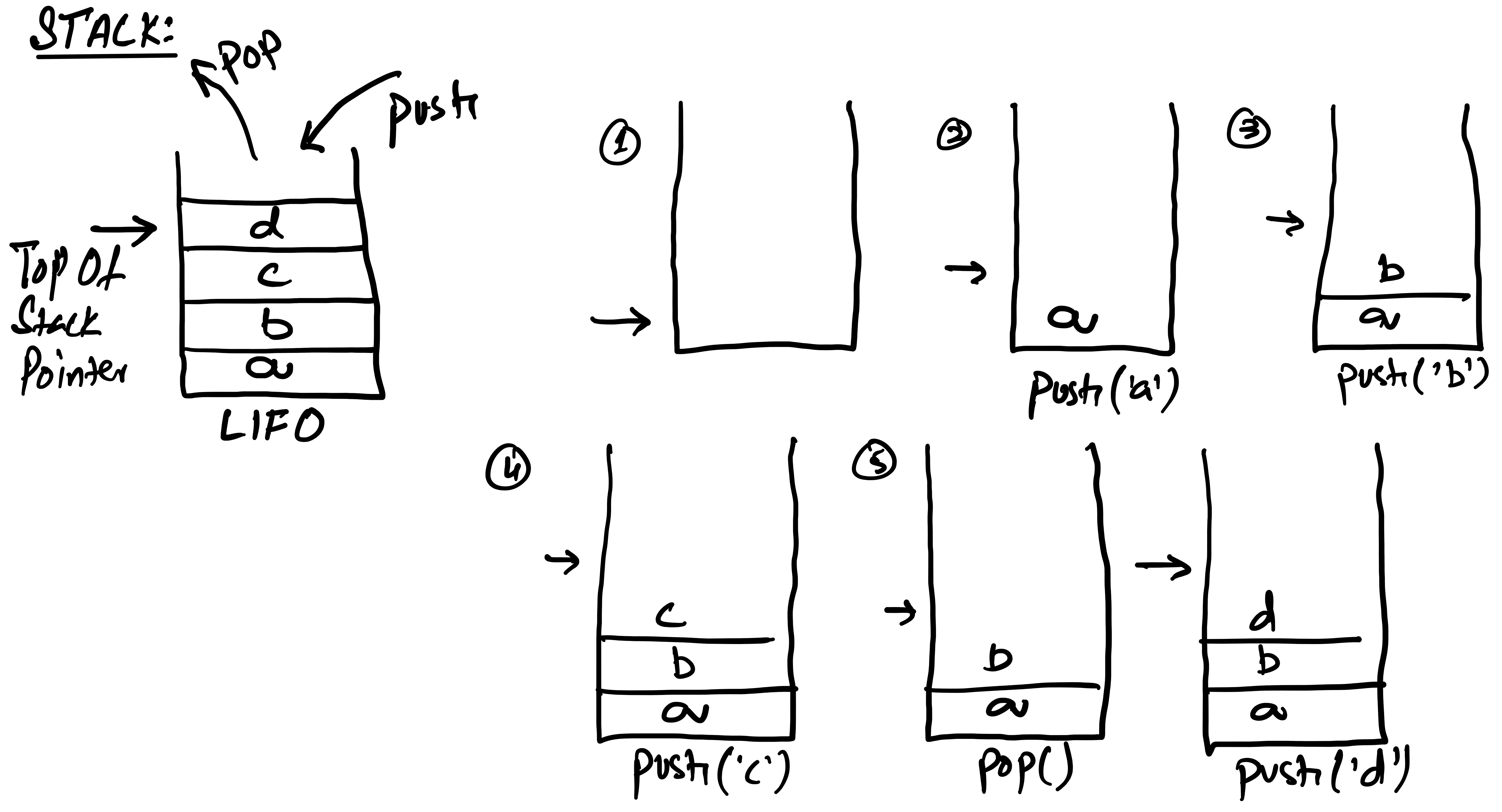
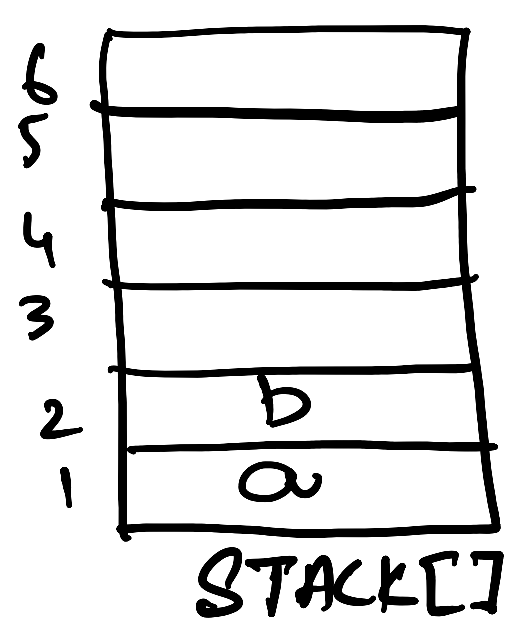
Abstract Data Types (ADTs)

Tuesday, 17 January 2023 7:14 PM

Abstract Data Type (ADT) is a type for objects whose behaviour is defined by a set of values and a set of operations.
Definition of ADT only mentions what operations are to performed but not how these operations are implemented.
It is called "abstract" because it gives an implementation-independent view.
It doesn't specify how data will be organised in memory & what algorithms will be used for implementating the operations.
We will define three ADTs namely:
Linked list ADT,
Stack ADT,
Queue ADT.

STACK:





ToS Pointer = ~~0~~ ~~1~~ ~~2~~ ~~3~~ 2

```
//Push

REPEAT
    INPUT "Enter a value to push: ", val
    IF val <> ""
      THEN
          ToSPtr ← ToSPtr + 1
          STACK[ToSPtr] ← val
    ENDIF
UNTIL ToSPtr = 6 OR val = ""

//POP
WHILE ToSPtr > 0
    OUTPUT STACK[ToSPtr]
    ToSPtr ← ToSPtr - 1
ENDWHILE
```