Methods of the Database Buffer

GET(Px): returns a reference to Px

FIX(Px): page Px may not be evicted anymore

UNFIX(Px): page Px may be evicted

PAGE_IN_BUFFER(Px): returns true, if buffer contains page Px

CHOOSE_PAGE(): chooses a page to evict and returns a reference to page
Implementation of GET

Get(Px):

1. If (not PAGE_IN_BUFFER(Px)):
   // check whether already exists
2. if (no empty slot available in buffer):
   // is there space to load a page?
3. $S = Pi = \text{CHOOSE\_PAGE}();$
   // choose a page to kick out
4. if (Pi is dirty):
   // did anyone change this page?
Implementation of GET

\[ \text{Get}(P_x) : \]

1. If (not PAGE_IN_BUFFER(P_x)):
   // check whether already exists
2. if (no empty slot available in buffer):
   // is there space to load a page?
3. \[ S = P_i = \text{CHOOSE\_PAGE()} ; \]
   // choose a page to kick out
4. \[ \text{if (} P_i \text{ is dirty)} : \]
   // did anyone change this page?
5. flush \( P_i \) to external memory;
   // oops, got to write it out first
6. else:
   // we have space left anyway...
7. \[ S = \text{getFreeSlot}() ; \]
   // pick a free page
8. read(\( P_x, S \));
   // read \( P_x \) into free slot
9. fix(\( P_x \));
   // fix page \( P_x \)
10. return \( P_x \);
    // return a reference to \( P_x \)

2 Random I/Os