1 B+ Tree

source: `https://github.com/k-mrm/se2020/tree/master/quiz-1023`

1.1

Listing 1: insert_in_leaf

```
NODE *
insert_in_leaf(NODE *leaf, int key, DATA *data)
{
  int i;
  if (key < leaf->key[0]) {
    for (i = leaf->nkey; i > 0; i--) {
      leaf->chi[i] = leaf->chi[i-1] ;
      leaf->key[i] = leaf->key[i-1] ;
    }
    leaf->key[0] = key;
    leaf->chi[0] = (NODE *)data;
  }
  else { // Quiz
    // Step 2. Insert the new key
    for(i = 0; i < leaf->nkey; i++) {
      if(key < leaf->key[i]) break;
    }
    for(int j = leaf->nkey; j > i; j--) {
      leaf->chi[j] = leaf->chi[j-1];
      leaf->key[j] = leaf->key[j-1];
    }
    leaf->key[i] = key;
    leaf->chi[i] = (NODE *)data;
  }

  leaf->nkey++;

  return leaf;
}
```

1.2

`key < leaf->key[i]`   i   i   i

1.3

Listing 2

Listing 2:

```
Key: 4999
[4999]
Key: 200
[200 4999]
Key: 1000
[200 1000 4999]
```