AKSHAY MITTUR
1BM18CS010

30-09-2020

ADS LAB
WEEK 2

## Skip List

Algorithms: / Pseudo Code

Deciding level. ⇒

```
lvl = 1
while rand() < p && lvl < n
    lvl += 1
return lvl
```

n = max no. of level

p = Nodes in it+1 pointers / Nodes

Insertion ⇒

```
x = list -> header
for(i = list -> level ; i >= 0; --i)
while (x -> forward[i] -> key) forward[i]
 update[i] = x
  x = x -> forward[0]
  lvl = decide level()
  if (lvl > list -> level)
        for(i = list -> level + 1 ; i >= lvl)
                                update[i] = list -> header
                                list -> level = lvl
  x = node(lvl, searchkey, value)
  for(i=0; i < level(); i++) {
                x -> forward[i] = update[i] -> forward[i]
                update[i] -> forward[i] = x
```

23-09-20

# ADS LAB
## WEEK 2

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Delete:

```
x = list -> header
for (i = list -> level ; i >= 0; i--)
    while (x -> forward[i] -> key ) forward[i]
        update[i] = x
x = x -> forward[0]
if x -> key = search then
    for i = 0; i <= list -> level
    if ( update[i] -> forward[i] ≠ x ) break ;
    update[i] -> forward[i] = x -> forward[i]
    free(x)
    while (list -> level > 0 && list -> header
                -> forward[list -> level]
                = NIL
    list -> level = list -> level - 1
```

Search:

```
x = list -> header
while (x -> forward[i] -> key ) forward[i]
x = x -> forward[0]
if (x -> key = search key ) return x -> value
else return false (or -999)
```