Hashing Data Structure

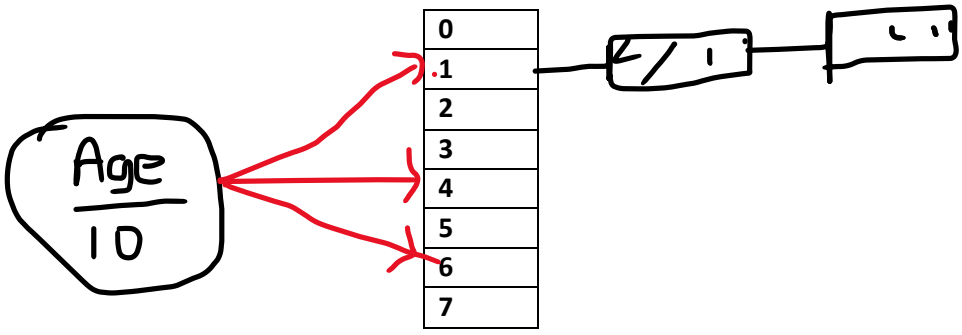
Hash-based indexes are best for equality selections. Can't support a range of searches.

B+ tree indexes are best for range selection.

Hashing pradan kotas dekai. Static and Dynamic hashing. Dynamic Hashing tavat kotas 2i Leaner hashing ha Extendible Hashing

1. Static Hashing

Meke krnne function ekk use krla index ek organize krna eka. Me kiynne api file organization vala ata kara Hashed file organization ekamai. Different ek tama Hashed file organization ek kre Table eke records valata. But Static hashing ek krnne Index ekt. Meke tiyna aula tama assume 10-20 tama hugak data tiyenne. Ehidi e block ek full unot ey rupe tiyn vidiyt tava block hadagen connect venva. E kiyenne ek long overflow chains ekk hdnva. Then performance ek down venva



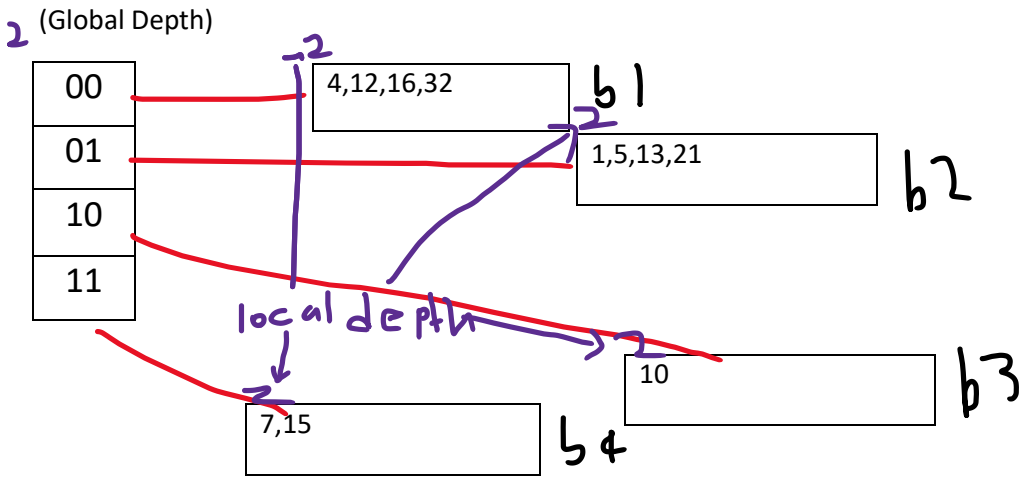
Problems:

- Insertion can create long overflow chains can develop and degrade performance.
- Deletion may waste space

Extendible and Linear Hashing: Dynamic techniques to fix this problem. (Me problem valat solutuin aran tama dynamic hashing ek avilla tiyenne).

2.1 Extendible Hashing

Meke venne me vge seen ekak. Global depth ekt adalav binary data combination ek hadagena ita adalava bucket tikata data dana ek mehidi karai. Assume Global depth eka 2i. Then Combination 4k hadann puluvn

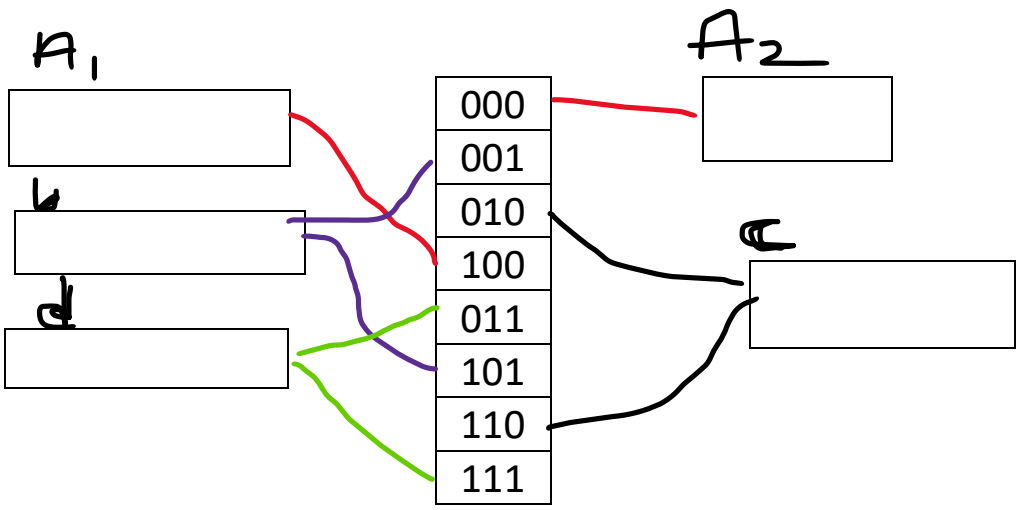


Me bucket valat value dala tiyn vidiya diha baluvot penva 4 – 0100 , 12 – 1100 vge avasana bit dekama 0 eva palaveni ekatat 10 – 1010 avasana bit ek 10 eva 3 bucket ektat lesa dala tiynne. Mehidi apita 11 insert krnn oni nm ehi binary agaya 1011 nisa api eka danne bucket 4 valata. Me vidiyt binary agaye last digit deka consider krmin value bucket valat damai.

Then assume apita age=13 studentge details gann oni nm krnne 13 binary vidiyt liyala avasan bit 2 anuva bucket ek tiranaya krl data gann ek. The meka equaling searching ekt patta speed.

Meket Sahamara velavat insert ekedi aulk enva. Assume apita 20 insert krnn oni. Then ek yann oni bucket 1 ekt but assume ek full. Then what we should do,

Ehidi api krnne bucket 1 ek tavat bucket ekkin extend krnva. E kiynne B11 and B12 kiyla bucket deck hadal ekt danava. Ema bucket ekk extend krddi Bucket eke local depth ekt ekk ekatu venva. ape scenario ekt anuva local depth ek 3k venva. But Meke rule ekk tiynva nitaram **Local depth ek Global depth ekt vada kuda ho smana venn oni kiyla.** Den mehidi ek violate venva. Then api ek fix krnne Global depth ekt ekkin ihala yvanal. Etkota venne mehemai,



Meket baluvama terenva last two bit 00 dekak tiyen eva A bucket ekt, 01 eva b ekt vge ara piliveltama tama connect krl tiyenne

Meke deletion ekk krnn oni qwa. Ikm oluve tiyagann qwa dynamic evge insert ekedi bucket span venva vgema delete ekedi space ek aduvenva. Space waste venne na static hashing vge