

Milestone 1

Adil Bukhari, Aman Syed, Jagroop Singh, Samir Cochinwala,
Sophie Mi

Page Range Class

Base Page Array \Rightarrow

tail
Page Directory = RID \rightarrow tail page #
offset

Capacity = 8192 \approx 16 BP

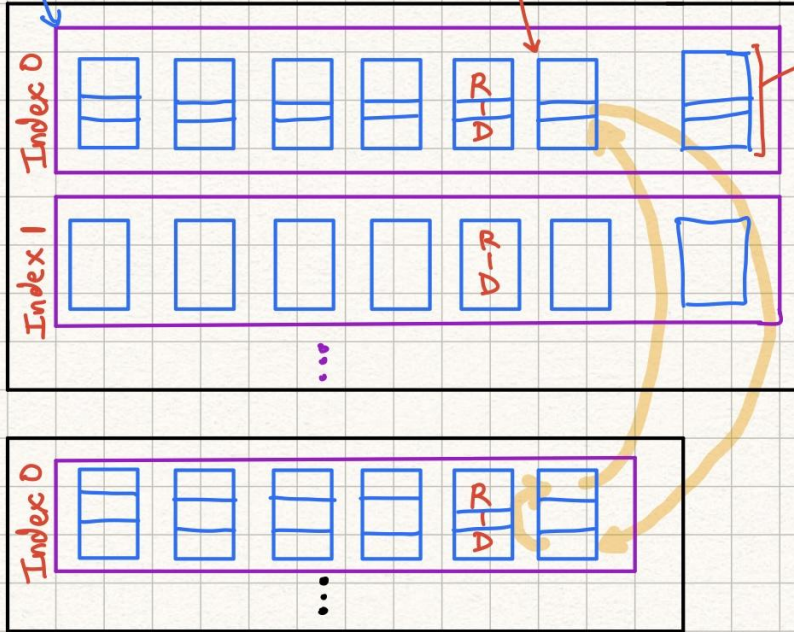
num Records = X

Tail Page Array \Rightarrow

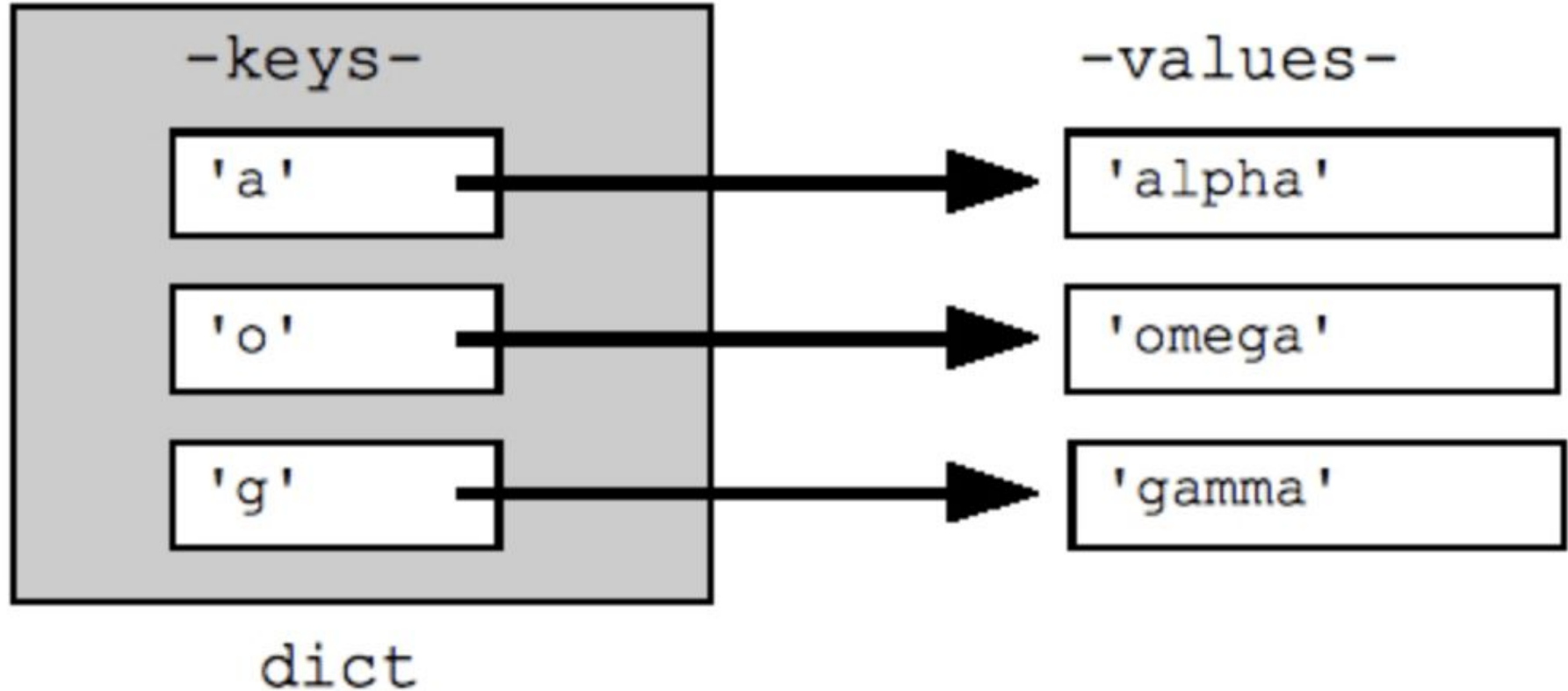
Base Page []

Indirection Column

schema
encoding column



Key -> RID and RID -> pagerange index, basepage, offset

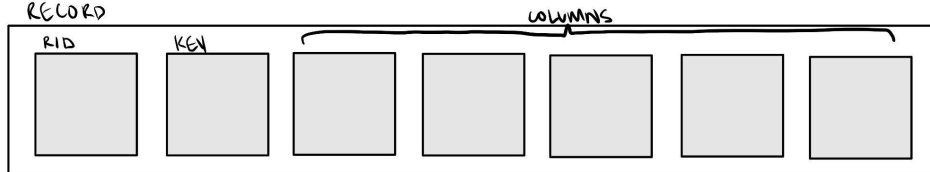


TABLE

RID-TEMP \leftarrow 1
 NAME \leftarrow name
 KEY \leftarrow key
 NUM-COLUMNS \leftarrow num-columns
 PAGE-DIRECTORY
 INDEX \leftarrow Index
 PAGE-RANGE-ARRAY

INSERT()
 UPDATE()
 READ()
 DELETE()
 GENERATE-UNIQUE-RID()

RECORD



- map the index
 - \rightarrow rid-in
 - \rightarrow pagerange-len
- is pagerange full?
 - \hookrightarrow yes; create new pagerange
 - \hookrightarrow no; insert to pagerange
- append page-directory



- break up RID to return the basepage and offset, and pagerange
- call readRecord() to read values for each column
- select Record using the rid, key, and column values

- map to rid using primary key
 - \hookrightarrow get entry in page directory
- retrieve basepage and offset info from page-directory
- call updateRecord() with basepage, offset, and new column values

Helper function to generate unique-rid() to insert()

- call the Index and page-directory to return the RID and column information
- call removeRecord() in pagerange to remove the record
- remove the RID mapping from page directory
- call delete in Index to remove the key

Table

Page

PAGE \rightarrow size = 4096 bytes

num_rewards

data

capacity = 512

HAS_CAPACITY()

WRITE()

READ()

- each element is 64 bits
- signed, little Endian byte order

Index

- `locate()`
 - 2 parameters (Column and Value)
 - First checks if value is present, if not returns a null value
 - Returns RID that matches the value
- `delete()`
 - Takes the Rid in the parameter and uses the python (del) function to delete the value
- `__init__()`
 - Assigns table to index object

Query

Abstracts majority of the functionality to table class

- **insert():**
 - Creates schema encoding column and passes it to insert function in table class along with the rest of the columns to create record
- **select():**
 - Figure out which RID's need to be read using index and call Table read with RID
- **update():**
 - Call update function in table
- **delete():**
 - Call delete function in table
- **sum():**
 - Iterate through keys in the range given. Find corresponding value in memory using locate and table read.