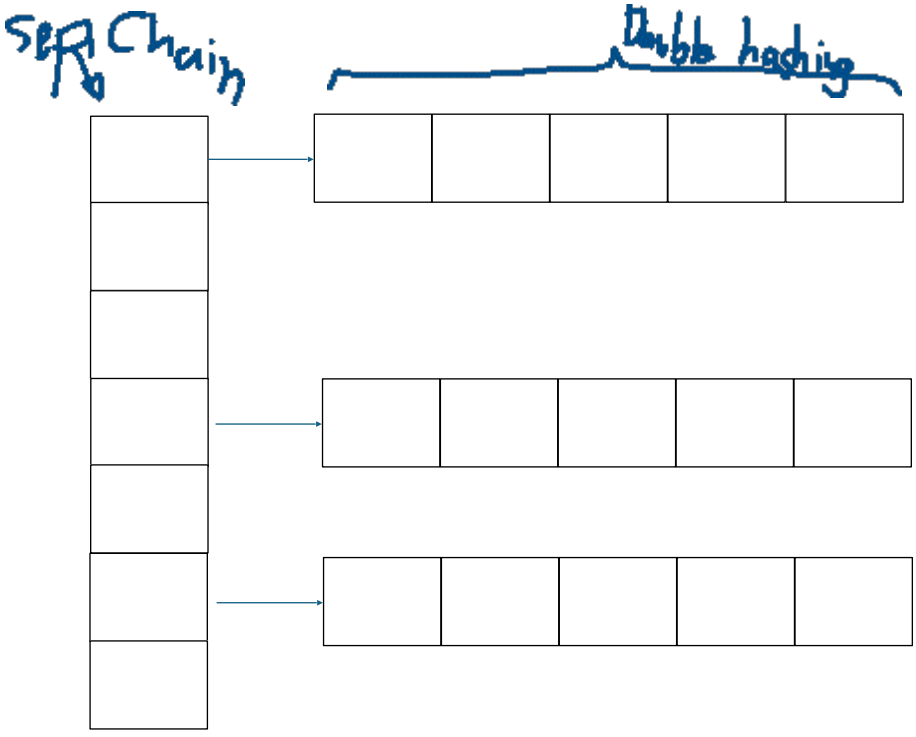
(8 marks)

You have to fill in the table in this question!

Draw in a given picture file (you can use Paint or any other program) and submit the picture file in Mycourseville.

- A separate chaining hash table for integer (hash function hash(x) = x%tableSize) has 7 slots.
- In each slot, it stores a double hashing hash table (with 5 slots) (hash function h(x) = x % tableSize(), f(i) = i* h2(x), where h2(x) = 3 – (x%3)).
- For simplicity, the hash tables in this question are never rehashed.
- For data addition, no duplicated data is allowed.
- For deletion, use lazy deletion, and the Deleted slot can be reused in future addition.
- Fill in what the table look like eventually, if the following takes place in sequence:
  - Add 5, 26, 12, 40
  - Delete 12, delete 5
  - Add 47, 12



① Add 5 hash 5 = 5 % 7 = 5 $h_2(5) = 5 \% 5 = 0$

Add 26 hash 26 = 26 % 7 = 5 $h_1(26) = 26 \% 5 = 1$

Add 12 hash 12 = 12 % 7 = 5 $h_1(12) = 12 \% 5 = 2$

Add 40 hash 40 = 40 % 7 = 5 $h_1(40) = 40 \% 5 = 0$

$h_1(40) = (0 + 1 \times (4 - 40 \% 3)) \% 5 = 2$

$h_2(40) = (0 + 2 \times (3 - 40 \% 3)) \% 5 = 4$

② Delete

③ Add 47 hash 47 = 47 % 7 = 5 $h_1(47) = 47 \% 5 = 2$

Add 12 hash 12 = 12 % 7 = 5 $h_1(12) = 12 \% 5 = 2$

$h_1(12) = (2 + 1 \times (3 - 12 \% 7)) \% 5 = 0$