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$m = 5$

$h(k,i) = (h_1(k) + i * h_2(k)) \bmod m$

$h_1(k) = k \bmod 5$, $h_2(k) = 7k \bmod 8$

$k = \langle 3, 10, 2, 4 \rangle$

0	3
1	10
2	2
3	4
4	

$h(3,0) = (3 \bmod 5 + 0((7*3) \bmod 8)) \bmod 5 = \underline{0}$

$h(10,0) = (10 \bmod 5) \bmod 5 = 0$

Since position 0 is already occupied we will try to find another location for 10.

$h(10,1) = (10 \bmod 5 + 1((7*10) \bmod 8)) \bmod 5$

$= (0 + 6) \bmod 5 = \underline{1}$

$h(2,0) = (2 \bmod 5) \bmod 5 = 0$ (already occupied)

$h(2,1) = (2 \bmod 5 + 1((2*7) \bmod 8)) \bmod 5$

$= (0+6) \bmod 5 = 1$ (already occupied)

$h(2,2) = (2 \bmod 5 + 2((2*7) \bmod 8)) \bmod 5$

$= (0 + 12) \bmod 5$

$= \underline{2}$

$h(4,0) = (4 \bmod 5) \bmod 5 = 0$ (occupied)

$h(4,1) = (4 \bmod 5 + 1((4 \times 7) \bmod 8)) \bmod 5$

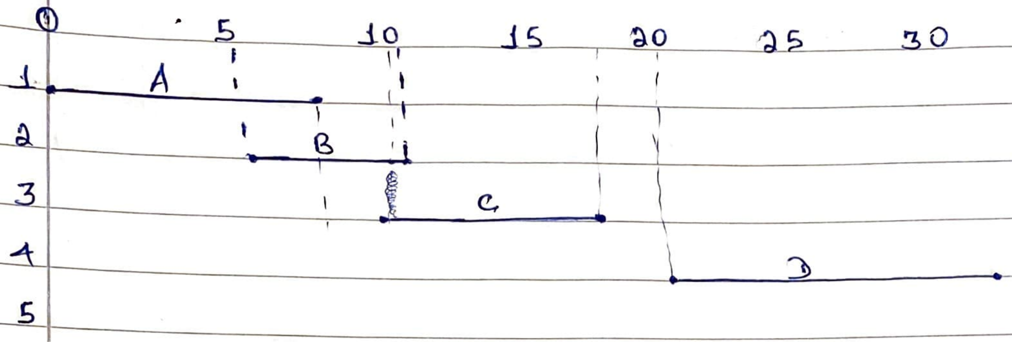
$= (0+4) \bmod 5 = 0$ (still occupied)

$h(4,2) = (4 \bmod 5 + 2((4*7) \bmod 8)) \bmod 5$

$= (0+8) \bmod 5$

$= \underline{3}$ (4 goes to position 3)

10.2 A) The best way to proof that choosing activity with the shortest duration may fail is by contradiction



X - axis represents the time span (in hrs)

Y - axis represents the index of the events

Duration of A = 8 hrs , B = 5 hrs , C = 9 hrs & D = 10 hrs

According to our theory, if we start with the shortest duration (B) we can only fit event D along with it $S = \{B, D\}$, because it will overlap with rest of the events.

- However if we start with the event with the earliest finish time (A), we can see that $S = \{A, C, D\}$ 3 events can be done.

Below is a table of Starting and ending time of events if the above drawing is not clear.

Event	Starting-time	Finishing time
A	0:00	7:00
B	5:00	10:00
C	9:00	17:00
D	20:00	30:00

Note that time after 24:00 is assumed to be in the next day.