Linear Queue – Implementation using a static structure

#define SIZE 5

q full & q empty condition reached at the same time

struct queue

0 1 2 3 4

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ~~10~~ | ~~20~~ | ~~30~~ | ~~40~~ | ~~50~~ |

{ 5

int data[SIZE]; q =

int front, rear;

}; f,r ~~f~~ ~~r~~ ~~f~~ ~~r~~ ~~f~~ r ~~r~~,~~f~~ r ~~f~~ f

struct queue q;

q.front = -1; // q is initialised

q.rear = -1;

10, 20,30, 40, 50

int delq(struct queue \*pq)

{

return pq->data[pq->front++];

}

void addq(struct queue \*pq,int no)

{

pq->rear++;

pq->data[pq->rear] = no;

// v imp

// check whether it is 1st element. If so, increment

int qfull(struct queue \*pq)

{

if (pq->rear == SIZE-1)

return 1; // q is full

return 0;

}

// rear also

if (pq->front == -1)

pq->front++;

}

int isqempty(strtuct queue \*pq)

{

if (pq->front == -1 || pq->front > pq->rear) // if front crosses rear, then also q is empty

return 1; // q is empty

return 0;

}