**SSN COLLEGE OF ENGINEERING**

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**ASSIGNMENT-6**

**APPLICATION OF QUEUE ADT**

**PROGRAM:**

**FILE 1:**

#include<stdio.h>

#include<string.h>

#include<stdlib.h>

#ifndef queue.h queue.h

#define queue.h

typedef struct mynode{

int burst;

char jno[30];

struct mynode\* next;

}node;

node\* front=NULL,\*r=NULL;

node\* front1=NULL,\*r1=NULL;

int isempty(node\* front){ *//checking for empty condition*

if(front==NULL)return 1;

else return 0;

}

void enqueue(int n,char pid[]){ *//inserting into q1*

node\* temp=(node\*)malloc(sizeof(node));

temp->burst=n;

strcpy(temp->jno,pid);

if(front==NULL){

front=(node\*)malloc(sizeof(node));

front->next=temp;

temp->next=NULL;

r=temp;

}

else{

r->next=temp;

temp->next=NULL;

r=temp;

}

return ;

}

void enqueue1(int n,char pid[]){ *//inserting into q2*

node\* temp=(node\*)malloc(sizeof(node));

temp->burst=n;

strcpy(temp->jno,pid);

if(front1==NULL){

front1=(node\*)malloc(sizeof(node));

front1->next=temp;

temp->next=NULL;

r1=temp;

}

else{

r1->next=temp;

temp->next=NULL;

r1=temp;

}

return ;

}

void display(node\* front){ *//display elements*

node\* temp;

if(isempty(front)){printf("queue empty");return;}

else{

temp=front->next;

while(temp->next!=NULL){

printf("\njob: %s \n processtime:%d",temp->jno,temp->burst);

temp=temp->next;

}printf(" \njob:%s \n processtime:%d",temp->jno,temp->burst);

return;

}

}

#endif

**FILE 2:**

#include<stdio.h>

#include “queue.h”

int main(){

int i=0,processtime,count=0,t1=0,t2=0;char c='y',id[30];

float times=0;

int a=0,b=0;

printf("QUEUE ADT\n");

while(c=='y'||c=='Y'){

count=count+1;

printf("PROCESS ID:");

scanf("%s",id);

printf("PROCESS TIME:");

scanf("%d",&processtime);

if(count==1 || (t1<t2) || (t1==t2) )

{

enqueue(processtime,id);

a=a+1;

t1=t1+processtime;

}

else if(count==2||(t2<t1) )

{

enqueue1(processtime,id);

b=b+1;

t2=t2+processtime;

}

printf("continue y/n");scanf(" %c",&c);

}

printf("\nQUEUE 1:");

display(front);

printf("\nwaiting time is %d",(t1/a)); *//avg wait time for q1*

printf("\nQUEUE 2:");

display(front1);

printf("\nwaiting time is %d",(t2/b)); *//avg wait time for q2*

return 0;

}

**OUTPUT:**

QUEUE ADT

PROCESS ID:j1

PROCESS TIME:6

continue y/ny

PROCESS ID:j2

PROCESS TIME:5

continue y/ny

PROCESS ID:j3

PROCESS TIME:2

continue y/ny

PROCESS ID:j4

PROCESS TIME:3

continue y/ny

PROCESS ID:j5

PROCESS TIME:7

continue y/ny

PROCESS ID:j6

PROCESS TIME:3

continue y/ny

PROCESS ID:j7

PROCESS TIME:7

continue y/ny

PROCESS ID:j8

PROCESS TIME:2

continue y/ny

PROCESS ID:j9

PROCESS TIME:3

continue y/ny

PROCESS ID:j10

PROCESS TIME:7

continue y/nn

QUEUE 1:

job: j1

processtime:6

job: j4

processtime:3

job: j6

processtime:3

job:j7

processtime:7

waiting time is 5

QUEUE 2:

job: j2

processtime:5

job: j3

processtime:2

job: j5

processtime:7

job: j8

processtime:2

job:j9

processtime:3

waiting time is 3