**Super Shop Simulator**

A super shop is a place where people find different kinds of products. But for the checkout window there is a rule for every super shop. They use different kinds of software system for there way of work to make it easy for them. In our super shop there is only one window for customers. So clerk have to manage through this. For their work customer have to come in a queue. The customer who came first will go first. The clerk will check through the software of a customer arrival, start and end of the processing time. And the history of the customer will save in a stack.

Code

#include<bits/stdc++.h>

using namespace std ;

typedef struct node

{

int a\_time,s\_time,c\_time ;

char name[20] ;

node\* next;

}\* simu\_ptr;

simu\_ptr front=NULL, rear=NULL,top=NULL,temp ;

int stime=0 ,endtime=0;

void input();

void cust\_arrive();

void add\_history();

void cust\_leave();

int work\_time();

void serve();

void show\_history();

int main()

{

int counter=0 ;

int enter ;

int c = 1 ;

while(1)

{

cout << "\t\tEnter negative value to show history"<<endl;

cout << "How many Customer arrived : " ;

cin >> enter ;

if(enter<0)

{

show\_history() ;

continue;

}

counter = counter+ enter ;

if(counter==0)

break;

int x = 0 ;

while(1)

{

if(x==enter)

break;

cust\_arrive();

x++ ;

}

serve() ;

if(c==1)

cout << "1st Customer leaved";

if(c==2)

cout << "2nd Customer leaved" ;

if(c==3)

cout << "3rd Customer leaved" ;

if(c>3)

cout << c<<"th Customer leaved" ;

cout << " at " << endtime <<endl<<endl ;

c++ ;

counter-- ;

cout << counter << " Customer is in the line" <<endl ;

cout << endl <<endl;

}

show\_history() ;

return 0 ;

}

void cust\_arrive()

{

simu\_ptr n = new node ;

n->next = NULL ;

cout << "name : " ;

cin >> n->name ;

cout << "arriving time : " ;

cin >> n->a\_time ;

int m = n->a\_time;

while(stime >m)

{

cout << "invalid time enter again : " ;

cin >> n->a\_time ;

m = n->a\_time;

}

if(stime<m)

stime=m;

if(rear==NULL )

{

front = n ;

rear = n ;

}

else

{

rear->next = n ;

rear = n ;

}

}

void input()

{

/\*

do

{

cout << "starting time : " ;

cin >> n->s\_time ;

}

while(n->a\_time > n->s\_time)

cout << "processing time : " ;

cin >> n->p\_time ;\*/

}

void serve()

{

temp = front ;

temp->s\_time = stime ; // initiate work

temp->c\_time = temp->s\_time + work\_time() ; // calculatitng finishing time

endtime =temp->c\_time;

if(stime<temp->c\_time) // for next work time sotre

stime=temp->c\_time;

cust\_leave() ;

}

int work\_time()

{

srand(time(0));

return (rand() % ((rand() %20)+1))+1 ; // random work time

}

void cust\_leave()

{

if(front ->next!=NULL)

front = front ->next ;

else

{

front = NULL ;

rear = NULL ;

}

//temp->next = NULL ;

add\_history();

}

void add\_history()

{

if (top == NULL)

{

temp -> next = NULL ;

top = temp ;

}

else

{

temp -> next = top ;

top = temp ;

}

}

void show\_history()

{

simu\_ptr print;

print = top ;

cout << "\t\t\thistory" << endl ;

while (print != NULL)

{

cout <<"name :"<< print->name <<endl;

cout <<"arriving time :"<< print->a\_time <<endl;

cout <<"starting time :"<< print->s\_time <<endl;

cout <<"ending time :"<< print->c\_time <<endl;

cout << "\_\_\_\_\_\_\_\_\_\_\_\_\_\_" << endl ;

print = print->next ;

}

**Output:**





