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**Green University of Bangladesh**

**Department of Computer Science and Engineering (CSE)**

**Faculty of Sciences and Engineering**

**Semester: (Summer, Year: 2022), B.Sc. in CSE (Day)**

**Course Title: Data Structure Lab**

**Course Code: CSE-106 Section: DD**

**Lab Project Name: Restaurant Management System**

**Student Details**

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**[For Teachers use only: Don’t Write Anything inside this box]**

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| **Lab Project Status**  **Marks: ………………………………… Signature: .....................**  **Comments: .............................................. Date: ..............................** |

# ---Project Code---

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| //Header file  #include<stdio.h>  #include<stdlib.h>  #include<string.h>  //Represent a node  struct node  {      int number;      char foodname[100];      int quantity;      float price;      struct node \*next;  };  //create some node  struct node \*heada=NULL;  struct node \*taila=NULL;  struct node \*newnode=NULL;  struct node \*headc=NULL;  struct node \*tailc=NULL;  //It show the option for admin  void admin\_menu()  {      printf("\n");      printf("1.View order menu\n");      printf("2.Add item in the menu\n");      printf("3.Delete item from the menu\n");      printf("4.Back to main menu\n");      printf("Enter your choose --> ");  }  //It show the option for customer  void customer\_menu()  {      printf("1.View order menu\n");      printf("2.Press for order food items\n");      printf("3.Delete item from your order\n");      printf("4.View total bill\n");      printf("5.Back to main menu\n");      printf("Enter your choose --> ");  }  //create order menu by admin  struct node \* create\_admin(struct node \*head ,int number,char foodname[50],float price)  {      struct node \*temp1=NULL;      newnode=(struct node \*)malloc(sizeof(struct node));      temp1=head;      newnode->number=number;      newnode->quantity=0;      strcpy(newnode->foodname,foodname);      newnode->price=price;      newnode->next=NULL;      if(temp1==NULL){          taila=heada=newnode;      }      else{          while(temp1->next!=NULL)          {              temp1=temp1->next;          }          taila=temp1;          temp1->next=newnode;      }      return heada;  }  //Create food menu which customer want  struct node \*create\_customer(struct node \*head,int number,int quantity)  {     struct node \*temp;     int flag=0;     temp=heada;     newnode=(struct node \*)malloc(sizeof(struct node));     while(temp!=NULL)     {      if(temp->number==number)      {          flag=1;          break;      }      temp=temp->next;     }     if(flag==1)     {      newnode->number=number;      newnode->quantity=quantity;      strcpy(newnode->foodname,temp->foodname);      newnode->price=quantity\*(temp->price);      newnode->next=NULL;      struct node \*temp1;      temp1=head;      if(temp1==NULL)      {          tailc=headc=newnode;      }      else{          while(temp1->next!=NULL)          {              temp1=temp1->next;          }          tailc=temp1;          temp1->next=newnode;      }     }     else     {      printf("Please Enter a Valid Number !!\n");     }     return headc;  }  //It can be use for both admin and customer for delete  struct node \* delete(struct node \*head,int number,struct node \*tail)  {       if(head==NULL)       {          printf("Menu is Empty !!\n");       }       else       {          struct node \*temp;        if(head->number==number)       {          temp=head;          head=head->next;          free(temp);       }       else if(tail->next->number==number){          temp=tail->next;          tail->next=NULL;          free(temp);       }       else{          struct node \*temp1;          temp=head;             while(temp->number!=number){              temp1=temp;              temp=temp->next;             }             temp1->next=temp->next;             free(temp);       }     }     return head;  }  //Admin can delete a food item  void delete\_admin()  {      printf("Enter the number of food item for delete -->");      int number;      scanf("%d",&number);      struct node \*temp;      temp=heada;      while(temp!=NULL){          if(temp->number==number){          heada=delete(heada,number,taila);          }          temp=temp->next;      }  }  //Customer can delete from his order  void delete\_customer()  {      printf("Enter the number of food item for delete -->");      int number;      scanf("%d",&number);      struct node \*temp;      temp=headc;      while(temp!=NULL){          if(temp->number==number){          headc=delete(headc,number,tailc);          }          temp=temp->next;      }  }  //It count customer total bill  void customer\_bill()  {      struct node \*temp;      temp=headc;      float total\_bill=0;      while(temp!=NULL)      {          total\_bill=total\_bill+temp->price;          temp=temp->next;      }      printf("\nYOUR TOTAL BILL --> %0.2f\n",total\_bill);  }  //Sort Function  void sort(struct node \*head)  {      struct node \*ptr1,\*ptr2;      struct node \*temp;      temp=(struct node\*)malloc(sizeof(struct node));      ptr1=head;      while(ptr1!=NULL)      {      ptr2=ptr1->next;      while(ptr2!=NULL)      {          if(ptr1->number>ptr2->number)          {            temp->number=ptr1->number;            temp->quantity=ptr1->quantity;            temp->price=ptr1->price;            strcpy(temp->foodname,ptr1->foodname);            ptr1->number=ptr2->number;            ptr1->quantity=ptr2->quantity;            ptr1->price=ptr2->price;            strcpy(ptr1->foodname,ptr2->foodname);            ptr2->number=temp->number;            ptr2->quantity=temp->quantity;            ptr2->price=temp->price;            strcpy(ptr2->foodname,temp->foodname);          }          ptr2=ptr2->next;      }      ptr1=ptr1->next;      }  }  //Display the order menu or food menu  void display\_menu(struct node \*ptr)  {      struct node \*temp;      temp=ptr;      if(temp==NULL){          printf("Menu is Empty!!\n");      }      else{          while(temp!=NULL){              if(temp->quantity==0)              {              printf("\n%d %s  %0.2f",temp->number,temp->foodname,temp->price);              }              else{       printf("%d %s %d  %0.2f\n",temp->number,temp->foodname,temp->quantity,temp->price);              }              temp=temp->next;          }      }      printf("\n");  }  //It is the starting point of RMS  void main\_menu()  {      printf("\t\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n");      printf("\t  WELCOME TO RESTAURANT MANAGMENT SYSTEM\n");      printf("\t\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n");      printf("\n");      printf("1.ADMIN MENU\n");      printf("2.CUSTOMER MENU\n");      printf("3.EXIT\n");      printf("Enter your choose --> ");  }  //This section admin can choose which he want  void admin()  {      printf("\n");      printf("---------------------------------\n");      printf("       ADMIN SECTION\n");      printf("----------------------------------\n");      printf("\n");      while(1)//Infinite loop      {        admin\_menu();        int option;        scanf("%d",&option);        if(option==4){          break;        }        switch(option)        {          case 1:          printf("\n");          printf("\n\*\*\*\*\*\*\*\*ORDER MENU\*\*\*\*\*\*\*\*\n");          display\_menu(heada);          break;          case 2:          printf("\nEnter serial number of food item -->");          int num,flag=0;          char name[50];          float price;          scanf("%d",&num);          struct node \*temp;          temp=heada;          while(temp!=NULL)          {              if(temp->number==num)              {                  printf("Wrong Serial Number !!\n");                  flag=1;                  break;              }              temp=temp->next;          }          if(flag==1)          break;          printf("Enter food item name --> ");          fflush(stdin);          gets(name);          printf("Enter price of food item -->");          scanf("%f",&price);          heada=create\_admin(heada,num,name,price);          printf("\nNew food item added in the menu\n");          printf("\n");          break;          case 3:          delete\_admin();          printf("\n\*\*\*UPDATED FOOD MENU\*\*\*\n");          printf("\n");          display\_menu(heada);          printf("\n");          break;          default:          printf("Wrong Choose!!\n");          break;        }      }  }  //This section customer can choose which they want  void customer()  {      printf("\n");      printf("-----------------------------------\n");      printf("      CUSTOMER SECTION\n");      printf("----------------------------------- \n");      printf("\n");      while(1) //Infinite loop      {          customer\_menu();          int option;          scanf("%d",&option);          if(option==5)          {              break;          }          switch(option)          {              case 1:              printf("\n");              printf("\n\*\*\*\*\*\*\*\*ORDER MENU\*\*\*\*\*\*\*\*\*\n");              display\_menu(heada);              printf("\n");              break;              case 2:              printf("Please enter the food number you want to order -->");              int number,quantity;              scanf("%d",&number);              printf("please enter the quantity -->");              scanf("%d",&quantity);              headc= create\_customer(headc,number,quantity);              printf("\n\*\*\*YOUR ORDERED FOOD ITEMS\*\*\*\n");              sort(headc);//here called sort function              display\_menu(headc);              printf("\n");              break;              case 3:              delete\_customer();              printf("\*\*\*UPDATED ORDER LIST\*\*\*\n");              printf("\n");              display\_menu(headc);              printf("\n");              break;              case 4:              customer\_bill();              printf("\n");              break;              default:              printf("\nPlease Enter a Valid Option\n");              break;          }      }  }  //Main function  int main()  {      //Initialize food number,name and price      heada=create\_admin(heada,1,"Fried Rice",200);      heada=create\_admin(heada,2,"Korian Soup",30);      heada=create\_admin(heada,3,"Black Coffee",45);      while(1) //It is infinite loop      {      main\_menu();      int choose;      scanf("%d",&choose);      if(choose==3)      {          printf("\n");          printf("\*\*\*\*\*Thank you\*\*\*\*\*\n");          break;      }      switch(choose)      {          case 1:          admin();          break;          case 2:          customer();          break;          case 3:          break;          default:          printf("please enter the valid option");          break;      }      }  } |

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