

# Lab 9

## Bibek Dhungana

### CODE

## Vegetable.h

```
#ifndef vegetable_h
#define vegetable_h

//defining the structure
typedef struct vegetable{
    char name[20];           //name is vegetable
    double pricePerPound;    //price per pound
    double quantity;         //quantity
    struct vegetable *next;  //pointer to vegetable_t
}vegetable_t;

//function prototype for createLinkedList
/*
NAME:createLinkedList
INPUT PARAMETERS:int num
RETURN TYPE:vegetable_t
SPECIFICATION: This function takes int num and create the linked list of
size num.
                This function also store the vegatable chain in tbat linked
list.
*/
extern vegetable_t* createLinkedList(int num);

//function prototype for diaplayLinkedList
/*
NAME:displayLinkedList
INPUT PARAMETERS:vegetable_t* v
RETURN TYPE:vegetable_t
SPECIFICATION: This function takes address of first block of linked list
                and display all the element of linked list.
```

```

*/
extern void displayLinkedList(vegetable_t* v);

//function prototype for findLinkedList
/*
NAME:findLinkedList
INPUT PARAMETERS:vegetable_t *v
RETURN TYPE:int
SPECIFICATION:This function takes input from the user search that input in
inventory.
                And, update the inventory as user input.
*/
extern int findLinkedList(vegetable_t *v);

//function prototype for refundLinkedList
/*
NAME:refundLinkedList
INPUT PARAMETERS:vegetable_t *v
RETURN TYPE:int
SPECIFICATION:This function takes input from the user search that input in
inventory.
                And, update/refund the inventory as user input.
*/
void refundLinkedList(vegetable_t *v);

#endif

```

## Vegetable.c

```

//including all the required libraries
#include "vegetable.h"
#include <stdlib.h>
#include <stdio.h>
#include <string.h>

//define macro

```

```
#define SIZE 20
```

```
//implementing displayLinkedList to display all the vegetables info
```

```
void displayLinkedList(vegetable_t* v){  
    printf("\nThe inventory is as follow:\n");  
    printf("-----\n");  
    while(v!= NULL){  
        printf("Vegetable Name:%s\n",v->name);  
        printf("pricePerPound:%.2f\n",v->pricePerPound);  
        printf("Quantity:%.2f\n\n\n",v->quantity);  
        v = v->next;  
    }  
    printf("-----\n");  
}
```

```
//implementing createLinkedList function
```

```
vegetable_t* createLinkedList(int num){  
  
    //taking the input and creating the linked list  
    int i; //counter variable  
    vegetable_t *first = NULL; //point to the first vegetable_t structure  
in linked list  
    vegetable_t *last = NULL; //point to the last vegetable_t structure  
in linked list  
    vegetable_t *temp; //temp pointer variable to build linked  
list  
  
    //creating first node in linked list  
    first = (vegetable_t*)malloc(sizeof(vegetable_t));  
    printf("Enter the vegetable name, price per pound and quantity  
separated by space\n");  
    scanf("%s %lf %lf", first->name, &first->pricePerPound, &first->  
>quantity);  
    first->next = NULL;  
    last = first;  
  
    //adding remaining node to linked list  
    for (i = 1; i < num; i++){  
        temp = (vegetable_t*)malloc(sizeof(vegetable_t));  
        printf("Enter the vegetable name, price per pound and quantity  
separated by space\n");
```

```

        scanf("%s %lf %lf", temp->name, &temp->pricePerPound, &temp->quantity);
        temp->next = NULL;
        last-> next = temp;
        last = temp;
    }
    return first;
}

```

```

//implementing the function findLinkedList
int findLinkedList(vegetable_t *v){
//creating temp variable to store the address
vegetable_t* temp = v;

//initializing the variables
int totalItemBought = 0;
char item[SIZE];
char mystr[SIZE] = "yes";
double weight;
double total = 0.0;
double grandTotal= 0.0;

//variable to track item name and its quantity
char itemBought[SIZE][SIZE];
double quantityBought[SIZE];

//using strcmp function to check the user input
while(strcmp(mystr,"yes") == 0){
    //taking user from input
    printf("what do you want to sell to customer?");
    scanf("%s",item);
    printf("How much pounds do you want?");
    scanf("%lf",&weight);

    //checking if v is null
    v = temp;
    while(v!= NULL){
        if(strcmp(v->name,item) == 0 ){
            //building the array to print the receipt

```

```

strcpy(itemBought[totalItemBought],item);
quantityBought[totalItemBought] = weight;
totalItemBought++;
printf("Total item sold:%d",totalItemBought);

//calculating the grand total price
v->quantity = v->quantity - weight;
total = weight * v->pricePerPound;
grandTotal = grandTotal + total;
}
//moving to next block.
v = v->next;
}
//taking user from the input
printf("\nDo you want to buy anything else?Enter 'yes' or 'no:");
scanf("%s",mystr);
}

//printing out the receipt
printf("\nYour receipt is\n");
printf("\n-----BILL-----\n");
printf("\n-----\n");
printf("Items Pounds\n");

for (int j = 0; j < totalItemBought; j++){
    printf("%s
%.2f\n",itemBought[j],quantityBought[j]);
}
printf("\nGRAND TOTAL:%.2f\n",grandTotal);
printf("\n-----THANK YOU-----\n");
printf("\n-----\n");
return 1;
}

void refundLinkedList(vegetable_t *v){

```

```

//creating temp variable to store the address
vegetable_t* temp = v;

//initializing the variables
char item[SIZE];
char mystr[SIZE] = "yes";
double weight;

//using strcmp function to check the user input
while(strcmp(mystr,"yes") == 0){
    //taking user from input
    printf("what do you want to as refund?");
    scanf("%s",item);
    printf("How much pounds do you want to refund?");
    scanf("%lf",&weight);

    //checking if v is null
    v = temp;
    while(v!= NULL){
        if(strcmp(v->name,item) == 0 ){
            //refund operation
            v->quantity = v->quantity + weight;
        }
        //moving to next block.
        v = v->next;
    }
    //taking user from the input
    printf("\nDo you want to refund anything else?Enter 'yes' or
'no:");
    scanf("%s",mystr);
}

}

```

# Lab9.c

```
/*
AUTHOR: BIBEK DHUNGANA
DATE:APRIL 9, 2021
FILENAME:LAB9
SPECIFICATION:This program manage inventory for small vegetable store
owner.The program takes input
                from the customers and generates a bill. After each sale the
program also increments
                /decrementsinventory
FOR:CS 1412
*/

//including all the required library
#include <stdio.h>
#include "vegetable.h"
#include <stdlib.h>
#include <string.h>
#include <ctype.h>
#include <stdbool.h>

//defining macro
#define SIZE 20

int main(void){
    //initializing all the required variables.
    int num;
    char input;
    vegetable_t *myLinkedList;

    //while loop
    while(true){
        //asking user for what operation they wanted to perform
        printf("Enter 'a' to add inventory, 's' to sell product and 'd' to
display status of inventory, 'r' for refund and 'q' to quit\n");
        fgets(&input, 50, stdin);

        //if input is add
        if(tolower(input) == 'a') {
            //asking info with the user
```

```

        printf("\nHow many vegetables you want to enter to your
inventory?");
        scanf("%d",&num);

        //creating linked list of size num and storing base address at
myLinkedList
        myLinkedList = createLinkedList(num);
    }

    //input is d
    if (tolower(input) == 'd'){
        //printing out the entire element of linked list.
        displayLinkedList(myLinkedList);
    }

    //input is r
    if (tolower(input) == 'r'){
        //printing out the entire element of linked list.
        refundLinkedList(myLinkedList);
    }

    //if input is s
    if (tolower(input) == 's'){
        //sell the product
        findLinkedList(myLinkedList);
    }

    //if input is q
    if (tolower(input) == 'q'){
        //sell the product
        printf("\nThank you for your business\n");
        break;
    }
}
return 0;
}

```



# OUTPUT

☐ clang-7 -pthread -lm -o main main.c vegetable.c

☐ ./main

Enter 'a' to add inventory, 's' to sell product and 'd' to display status of inventory, 'r' for refund and 'q' to quit

a

How many vegetables you want to enter to your inventory?3

Enter the vegetable name, price per pound and quantity separated by space

tomato 2.6 82.0

Enter the vegetable name, price per pound and quantity separated by space

potato 1.8 56.0

Enter the vegetable name, price per pound and quantity separated by space

brinjal 1.2 88.0

Enter 'a' to add inventory, 's' to sell product and 'd' to display status of inventory, 'r' for refund and 'q' to quit

Enter 'a' to add inventory, 's' to sell product and 'd' to display status of inventory, 'r' for refund and 'q' to quit

d

The inventory is as follow:

-----

Vegetable Name:tomato

pricePerPound:2.60

Quantity:82.00

Vegetable Name:potato

pricePerPound:1.80

Quantity:56.00

Vegetable Name:brinjal

pricePerPound:1.20

Quantity:88.00

-----

Enter 'a' to add inventory, 's' to sell product and 'd' to display status of inventory, 'r' for refund and 'q' to quit

s

what do you want to sell to customer?tomato

How much pounds do you want?2.7

Total item sold:1

Do you want to buy anything else?Enter 'yes' or 'no':yes

what do you want to sell to customer?potato

How much pounds do you want?5.6

Total item sold:2

Do you want to buy anything else?Enter 'yes' or 'no':no

Your receipt is

-----BILL-----

| Items  | Pounds |
|--------|--------|
| tomato | 2.70   |
| potato | 5.60   |

GRAND TOTAL:17.10

-----THANK YOU-----

-----

Enter 'a' to add inventory, 's' to sell product and 'd' to display status of inventory, 'r' for refund and 'q' to quit

Enter 'a' to add inventory, 's' to sell product and 'd' to display status of inventory, 'r' for refund and 'q' to quit

r

what do you want to as refund?potato

How much pounds do you want to refund?1.8

Do you want to refund anything else?Enter 'yes' or 'no':no

Enter 'a' to add inventory, 's' to sell product and 'd' to display status of inventory, 'r' for refund and 'q' to quit

Enter 'a' to add inventory, 's' to sell product and 'd' to display status of inventory, 'r' for refund and 'q' to quit

d

The inventory is as follow:

-----

**Vegetable Name:tomato**  
**pricePerPound:2.60**  
**Quantity:79.30**

**Vegetable Name:potato**  
**pricePerPound:1.80**  
**Quantity:52.20**

**Vegetable Name:brinjal**  
**pricePerPound:1.20**  
**Quantity:88.00**

-----  
**Enter 'a' to add inventory, 's' to sell product and 'd' to display status of inventory, 'r' for  
refund and 'q' to quit**  
**q**

**Thank you for your business**  
☐