//Name: Mehmet Fatih Celik

//ID: 2385268

#include <stdio.h>

#include <stdlib.h>

struct Node

{

int val;

struct Node \*next;

};

struct Node \*InsertProduct(struct Node \*product);

struct Node \*PriceChanges(struct Node \*product);

void PrintPriceChanges(struct Node \*priceDiff);

int main(){

int choice;

struct Node \*product;

struct Node \*priceDiff;

do{

printf("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n");

printf("1) Create yearly price for the product\n");

printf("2) Display yearly price changes for the product\n");

printf("3) Exit\n");

printf("What would you like to do? ");

scanf("%d",&choice);

printf("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n");

if(choice==1)

product =InsertProduct(product);

else if(choice==2){

priceDiff = PriceChanges(product);

PrintPriceChanges(priceDiff);

}

else if(choice!=3)

printf("Please enter a valid number!\n");

}while(choice!=3);

return 0;

}

struct Node \*InsertProduct(struct Node \*product){

product = (struct Node \*)malloc(sizeof(struct Node));

product->next=NULL;

struct Node \*tmp, \*tail;

tail = product;

int num\_years, i, price;

printf("How many years? ");

scanf("%d",&num\_years);

printf("Enter prices for the product: ");

for(i=0;i<num\_years;i++){

scanf("%d",&price);

tmp = (struct Node \*)malloc(sizeof(struct Node));

tmp->next=NULL;

tmp->val=price;

tail->next=tmp;

tail=tmp;

}

printf("Prices for the product is created successfully!\n");

return product;

}

struct Node \*PriceChanges(struct Node \*product){

struct Node \*tmp=product->next;

struct Node \*priceDiff, \*temp, \*tail;

priceDiff = (struct Node \*)malloc(sizeof(struct Node));

priceDiff->next=NULL;

tail=priceDiff;

while(tmp->next){

temp = (struct Node \*)malloc(sizeof(struct Node));

temp->next=NULL;

temp->val= tmp->next->val-tmp->val;

tail->next=temp;

tail=temp;

tmp=tmp->next;

}

return priceDiff;

}

void PrintPriceChanges(struct Node \*priceDiff){

printf("Changes per year are as follows:\n");

int i=1;

struct Node \*temp=priceDiff->next;

while(temp){

if (temp->val>0)

printf("Year %d: Price increased %d tl\n",i,temp->val);

else if (temp->val<0)

printf("Year %d: Price decreased %d tl\n",i,abs(temp->val));

else

printf("Year %d: Price didnt change!\n",i);

temp=temp->next;

i++;

}

}