

4IT Erasmus+Project 2024-1-RO01-KA121-VET-000214264
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MOBILITY PORTFOLIO
Paphos, Cyprus

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Receiving

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Mihoc Marco - site selecție



Mihoc Marco

Pagina de pornire | Despre mine | Galerie | Mobilitate

Despre mine

Mă numesc Mihoc Marco și sunt elev la Colegiul Național „Roman-Vodă". Consider că sunt o persoană cinstită, modestă și de încredere. De asemenea, colaborez foarte bine atunci când lucrez în echipă și mă adaptez ușor în situații neprevizibile.

PASIUNI

Pasiunea mea cea mai mare este tehonologia. Încă de mic mi-a plăcut să experimentez lucruri noi în acest domeniu. Astfel, am învățat singur să folosesc calculatorul, internetul și să instalez aplicații. Acum, îmi place să încerc noi programe și să dobândesc abilități noi, cum ar fi editatul video sau crearea de jocuri. La liceu învăț limbajul de programare c++, ce mi se pare foarte interesant, astfel că, uneori, în timpul liber, rezolv probleme pentru a-mi exersa cunoștiințele.

O altă pasiune a mea este fotbalul ⚽. Este sportul meu preferat deoarece este îmi oferă bucurie, energie, și diciplină. Fotbalul m-a învățat să îmi depășesc limitele, să îmi accept greșelile și să lupt mereu pentru victorie. Îmi place atât să urmăresc jocurile echipelor mele preferate, cât și să joc alături de prieteni, unde pot să-mi perfecționez abilitățile și să mă relaxez.

ASPIRAȚII

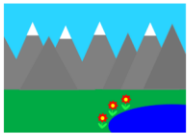
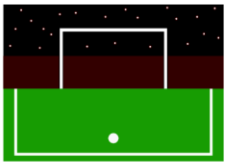
Îmi doresc ca pe viitor să devin un profesionist în domeniul IT, contribuind la dezvoltarea tehnologiei inovatoare care să facă viața oamenilor mai ușoară. Îmi doresc să continui să învăț mereu și să explorez noi tehnologii și abordări în acest domeniu fascinant. Cred că echilibrul între muncă și viață personală este cheia spre succes, așa că îmi doresc să am un stil de viață care să combine progresul profesional cu plăcerea de a face ceea ce iubesc. Consider că proiectul 4IT mă va ajuta să ajung cu un pas mai aproape de țelul meu prin activitățile realizate în cadrul acestuia.

Mihoc Marco

Pagina de pornire | Despre mine | Galerie | Mobilitate

Galerie





Mihoc Marco

Pagina de pornire | Despre mine | Galerie | Mobilitate







Mihoc Marco - prezentare pregătire

Scurtă prezentare și relevanță pentru contextul Erasmus+

Dezvoltarea durabilă și antreprenoriatul sunt esențiale pentru viitorul economiei și al societății.
Dezvoltarea durabilă asigură resursele pentru generațiile viitoare. Pe de altă parte, antreprenoriatul este motorul inovației, oferind soluții creative la provocările economice și sociale.

În cadrul Erasmus+, dezvoltarea durabilă și antreprenoriatul sunt promovate prin proiecte educaționale care sprijină inițiative verzi, oferind tinerilor șansa de a deveni antreprenori responsabili, capabili să creeze afaceri inovatoare cu impact pozitiv asupra mediului.

Erasmus+



Economia circulară este un model economic care promovează reducerea deșeurilor, reutilizarea materialelor și regenerarea resurselor cât mai mult timp posibil. Spre deosebire de economia liniară, care presupune “producere-consum-aruncare”, economia circulară încurajează un ciclu sustenabil al produselor.



În contextul schimbărilor climatice, sustenabilitatea în afaceri nu mai este opțională, ci o necesitate pentru a asigura nu doar viabilitatea pe termen lung a întreprinderii, ci și responsabilitatea față de mediu și societate.

Sustenabilitatea influențează antreprenoriatul prin:

1. Noi oportunități de afaceri
2. Reducerea costurilor prin practici sustenabile
3. Acces la finanțare și sprijin guvernamental
4. Avantaj competitiv și loialitatea clienților



Mobilitate-Produse

```cpp
#include <iostream>
using namespace std;
int main()
{
    //1
    int age; // saves integer
    char b;
    int *aPtr; // saves adress
    char *bPtr;
    //example adress name 0X75AB34
    age=5;
    aPtr= &age;
    //aPtr=0X75AB34 in the RAM memory
    cout<<age<<"\n"; //5
    cout<<aPtr<<"\n"; //0X75AB34
    cout<<*aPtr<<"\n"; //5
    cout<<"\n\n\n";

    //2
    int a=5;
    int *ptr;
    ptr=&a;
    for(int i=0;i<10;i++)
    {
        cout<<ptr<<"\n";
        ptr++;
    }
    cout<<a<<"\n";
    cout<<ptr<<"\n";
    cout<<*ptr<<"\n"; //it will not be equal to a, as the pointer no longer points to a
    return 0;
}
```

```cpp
#include <iostream>
using namespace std;
int main()
{
    //dynamic growing arrays
    int ARRAYSIZE = 0;                                  //the ARRAYSIZE is how many numbers the user wants to input. This might change if the user wishes to change it!
    int* a;                                             //a is a pointer to an integer. This is going to be our main array to save integers
    int* temp;                                          //temp is a pointer to an integer and is going to be a temporary array. We need it in order to be able to GROW ou
    int  n = 0, tmpN=0;                                 //n is the counter to count the iterations. tmpN is a number we read from the user in order to see if they need t

    //--- Read into the array
    cout<<"How many numbers would you like to enter?:"; //ask the user and create an array according to the user's demand.
    cin>>ARRAYSIZE;                                     //read the size of the array from the user
    a = new int[ARRAYSIZE];                             //dynamically create an array with the number the user gave to us.

    do{
        cout<<"Enter number "<<n<<" ->";                //prompt the user to enter the numbers
        cin >> a[n];                                    //save the number we just read into our dynamic array
        cout<<"Number saved!"<<endl;
        n++;                                            //after saving the number we have to increase the counter
        if (n >= ARRAYSIZE){                            //if the new counter is equal to the ARRAYSIZE we need to GROW THE ARRAY
            cout<<"Out of Space!!!! would you like to enter more? Please enter how many(0 to Exit): ";//LET THE USER KNOW THAT THE ARRAY IS OUT OF SPACE AND ASK HOW MANY
            cin>>tmpN;                                  //read how many more number the user needs to input
            if (tmpN > 0){                              //ERROR CHECKING: If the number the user gave us is not zero OR below zero we grow the array
                ARRAYSIZE = ARRAYSIZE + tmpN;           // Add to the previous size the added size the user gave us
                temp = new int[ARRAYSIZE];              // create new temporary bigger array. We need it to copy the contents of the previous array so we don't lose them
                for (int i=0; i<n; i++) {               //We use the for loop to copy the contents from the previous array into the temporary array(which has a bigger siz
                    temp[i] = a[i];                     // copy values to new array.
                }
                delete [] a;                            // free old array memory. ALSO SEE LAST COMMENT UNDER MAIN
                a = temp;                               // now a points to new array.
            }
        }

    }while (n<ARRAYSIZE);
    cout<<"Now printing the numbers you inputed"<<endl;
    for (int i=0; i<ARRAYSIZE;i++)
        cout<<a[i]<<endl;
    delete [] a; //free the memory of a
    return 0;
}
```

```cpp
#include <iostream>
using namespace std;
/*
write a program where you will use a dynamic array to save characters. the user will give you numbers(integers) that range from 65 to 90
as soon as you read the number you will convert it to character and save it into a dynamic character array
your program will be able to make the array bigger if it is full. at the end you must display the result that you have read from the user
*/
int main()
{
    int size=0,n=0,ntemp,x;
    int *a;
    int *temp;
    cout<<"How many numbers do you want to turn into characters? "; cin>>size;
    a=new int[size];
    do{
        cout<<"Enter number "<<n<<" "; cin>>x;
        if(x>=65 && x<=90) {
            a[n]=(char)x;
            n++;
            cout<<"Number saved!\n";
        }
        else cout<<"The number you entered is not between 65 and 90!\n";
        if(n>=size){
            cout<<"Out of Space!! Would you like to enter more? Please enter what quantity(if you don't want to add any type 0)";
            cin>>ntemp;
            if(ntemp){
                size+=ntemp;
                temp=new int[size];
                for (int i=0;i<n;i++)
                    temp[i]=a[i];
                delete [] a;
                a=temp;
            }
        }
    }while(n<size);
    cout<<"Now printing the numbers you inputed into characters\n";
    for (int i=0; i<size;i++)
        cout<<a[i]<<endl;
    delete [] a;
    return 0;
}
```

```cpp
#include <iostream>
using namespace std;
class student
{
    private:
        string name;
        string lname;
        float exam1;
        float exam2;
    public:
        student(){//constructor: We use constructors to initialize the object's variables
            name="EMPTY";
            lname="EMPTY";
            exam1=1.1;
            exam2=1.1;
        }
    void setName(string n){  name=n; }
    void setLname(string l){ lname=l; }
    void setExam1(float e1){ exam1=e1;}
    void setExam2(float e2){ exam2=e2;}
    string getName(){ return name;}
    string getLname(){ return lname;}
    float getExam1(){ return exam1;}
    float getExam2(){ return exam2;}
};

int main(){
    const int MAXSTUDENTS=5;
    student myclass[MAXSTUDENTS];
    string tname="", tlname="";
    float texam1=0.0, texam2=0.0;

    for (int i=0;i<MAXSTUDENTS;i++){

        cout<<"Name "<<i<<": ";
        cin>>tname;
        myclass[i].setName(tname);

        cout<<"Last Name "<<i<<": ";
        cin>>tlname;
        myclass[i].setLname(tlname);

        cout<<"1st Exam "<<i<<": ";
        cin>>texam1;
        myclass[i].setExam1(texam1);


        cout<<"2nd Exam "<<i<<": ";
        cin>>texam2;
        myclass[i].setExam2(texam2);

    }
    cout<<endl<<endl<<endl;
    cout<<"---------YOU HAVE SAVED THE FOLLOWING INFO ----------"<<endl;
    for (int i=0;i<MAXSTUDENTS;i++){

        cout<<myclass[i].getName()<<" "<<myclass[i].getLname()<<endl;
        cout<<"Exam 1: "<<myclass[i].getExam1()<<" - Exam2: "<<myclass[i].getExam2()<<endl;
    }
    return 0;
}
```

```cpp
#include <iostream>
#include <cstring>
using namespace std;
/* 1 -- collect informations about students - name, telephone number, using 2 dynamics arrays
   2 -- search for a person in the array and display the phone number
   3 -- convert the above problem in order to be able to not only read information but also search
        for a name and a phone number, also make this program search for a phone number and give back a name
*/
int main()
{
    string *name,*temp1;
    string *phonenr,*temp2;
    int arrsize,n=0,ntemp;
    cout<<"How many students do you want to add to the database? ";
    cin>>arrsize;
    name=new string[arrsize];
    phonenr=new string[arrsize];
    do
    {
        cout<<"Enter the name and the telephone number of student "<<n<<": ";
        cin>>name[n];
        cin>>phonenr[n];
        n++;
        if(n>=arrsize)
        {
            cout<<"Out of space! Would you like to add more students? If yes, type how many, else type 0: ";
            cin>>ntemp;
            if(ntemp>0)
            {
                arrsize+=ntemp;
                temp1=new string[arrsize];
                temp2=new string[arrsize];
                for(int i=0;i<n;i++)
                {
                    temp1[i]=name[i];
                    temp2[i]=phonenr[i];
                }
                delete [] name;
                delete [] phonenr;
                name=temp1;
                phonenr=temp2;
            }
        }
    }while(n<arrsize);
    cout<<"\nNow printing the student information\n";
    for(int i=0;i<arrsize;i++)
    {
        cout<<"Student "<<i<<" ";
        cout<<name[i]<<" "<<phonenr[i]<<"\n";
    }
    cout<<"\n";
    bool ok;
    cout<<"Do you want to search for anyone in the database?(0=NO,1=YES): ";
    cin>>ok;
    if(ok)
    {
        int option;
        cout<<"\nType 1 if you want to search a name using the phone number, or type 2 if you want to search a phone number using a name: ";
        cin>>option;
        if(option==1)
        {
            bool alr=false;
            while(!alr)
            {
                string searchednr;
                cout<<"\nType the number: ";
                cin>>searchednr;
                for(int i=0;i<arrsize;i++)
                    if(searchednr==phonenr[i])
                    {
                        cout<<"\nThe number "<<searchednr<<" belongs to "<<name[i];
                        alr=1;
                        break;
                    }
                if(!alr) {
                    int opt;
                    cout<<"\n"<<searchednr<<" is not in our database. Would you like to search for another number?(0=NO,1=YES): ";
                    cin>>opt;
                    if(opt==0) alr=1;
                }
            }
        }
        else
        {
            bool alr=false;
            while(!alr)
            {
                string searchedname;
                cout<<"\nType the name: ";
                cin>>searchedname;
                for(int i=0;i<arrsize;i++)
                    if(searchedname==name[i])
                    {
                        cout<<"\n"<<searchedname<<" has been found. His/her phone number is "<<phonenr[i];
                        alr=1;
                        break;
                    }
                if(!alr) {
                    int opt;
                    cout<<"\n"<<searchedname<<" is not in our database. Would you like to search for another name?(0=NO,1=YES): ";
                    cin>>opt;
                    if(opt==0) alr=1;
                }
            }
        }
    }
    else cout<<"No problem! Have a great day!";
    delete [] name;
    delete [] phonenr;
    return 0;
}
```

```cpp
#include <iostream>
#include <cstring>
using namespace std;
int main(int argc, char *argv[]) // argc-> argument count , argv-> array that holds the arguments (0 to argc -1)
{
    cout<<"You have entered "<<argc<<" arguments:\n";
    //using a while loop to iterate through arguments
    int i=1;
    while(i<argc){
        cout<<"Argument "<<i+1<<": "<<argv[i]<<"\n";
        if(strcmp(argv[i],"/h")==0){
            //write code to show help
        }
        if(strcmp(argv[i],"/s")==0){
            //write code to implement /s option
        }
        if(strcmp(argv[i],"/t")==0){
            //write code to implement /t option
        }
        i++;
    }
    return 0;
}
```

Bază de date pentru mașini

```cpp
#include <iostream>
using namespace std;
class garage
{
    private:
        string brand;
        string model;
        string number;
        string owner;
    public:
        garage() {
            brand = "EMPTY";
            model = "EMPTY";
            number = "EMPTY";
            owner = "EMPTY";
        }
    void setBrand(string b)
        { brand = b; }
    void setModel(string m)
        { model = m; }
    void setNumber(string nr)
        { number = nr; }
    void setOwner(string o)
        { owner = o; }
    string getBrand()
        { return brand; }
    string getModel()
        { return model; }
    string getNumber()
        { return number; }
    string getOwner()
        { return owner; }
};
//1
void enterdata(garage *&mygarage, int &size, int &nrcars)
{
    int ntemp;
    string userInput, temp2;
    do
    {
        cout<<"\n-------CAR "<<nrcars+1<<"-------\n";
        cout<<"Brand "<<nrcars+1<<": ";
        cin>>userInput;
        mygarage[nrcars].setBrand(userInput);

        cout<<"Model "<<nrcars+1<<": ";
        cin>>userInput;
        mygarage[nrcars].setModel(userInput);

        cout<<"Plate Number "<<nrcars+1<<": ";
        cin>>userInput>>temp2;
        userInput=userInput+" "+temp2;
        mygarage[nrcars].setNumber(userInput);

        cout<<"Owner name "<<nrcars+1<<": ";
        cin>>userInput;
        mygarage[nrcars].setOwner(userInput);
        cout<<"\n";
        nrcars++;
        if (size<=nrcars)
        {
            cout<<"Out of space! Would you like to add more cars? If yes, type how many, else type 0: ";
            cin>>ntemp;
            if(ntemp>0)
            {
                size+=ntemp;
                garage *temp=new garage[size];

                for (int i=0;i<nrcars;i++)
                    temp[i]=mygarage[i];

                delete []mygarage;
                mygarage=temp;
            }
        }
    } while(nrcars<size);
}
//2
void display(garage mygarage[], int nrcars)
{
    cout<<"\n\n---------YOU HAVE SAVED THE FOLLOWING CARS ----------\n";
    for (int i=0;i<nrcars;i++)
    {
        cout<<"Car number "<<i+1<<": "<<mygarage[i].getBrand()<<" "<<mygarage[i].getModel();
        cout<<" Plate number: ["<<mygarage[i].getNumber()<<"] - owner: "<<mygarage[i].getOwner()<<"\n";
    }
}
//3
void searchBrand(garage mygarage[], int nrcars)
{
    string x;
    bool found = false;
    cout<<"What brand are you looking for? ";
    cin>>x;
    for(int i=0;i<nrcars;i++)
    {
        if(mygarage[i].getBrand() == x)
        {
            if(!found) cout<<"\nWe have found:\n";
            found = true;
            cout<<"- "<<mygarage[i].getBrand()<<" "<<mygarage[i].getModel();
            cout<<" ["<<mygarage[i].getNumber()<<"] - owner: "<<mygarage[i].getOwner()<<"\n";
        }
    }
    if(!found) cout<<"No car with that brand found.\n";
}
//4
void searchModel(garage mygarage[], int nrcars)
{
```

```
    string x;
    bool found = false;
    cout<<"What model are you looking for? ";
    cin>>x;
    for(int i=0;i<nrcars;i++)
    {
        if(mygarage[i].getModel() == x)
        {
            if(!found) cout<<"\nFound cars:\n";
            found = true;
            cout<<"- "<<mygarage[i].getBrand()<<" "<<mygarage[i].getModel();
            cout<<" ["<<mygarage[i].getNumber()<<"] - owner: "<<mygarage[i].getOwner()<<"\n";
        }
    }
    if(!found) cout<<"No car with that model found.\n";
}
//5
void searchOwner(garage mygarage[], int nrcars)
{
    string x;
    bool found = false;
    cout<<"Enter owner's name: ";
    cin>>x;
    for(int i=0;i<nrcars;i++)
    {
        if(mygarage[i].getOwner() == x)
        {
            if(!found) cout<<"\nCars owned by "<<x<<":\n";
            found = true;
            cout<<"- "<<mygarage[i].getBrand()<<" "<<mygarage[i].getModel();
            cout<<" ["<<mygarage[i].getNumber()<<"]\n";
        }
    }
    if(!found) cout<<"No cars found for this owner.\n";
}
//6
void searchPlatenr(garage mygarage[], int nrcars)
{
    string x,y,z;
    bool found = false;
    cout<<"Enter full plate number: ";
    cin>>y>>z;
    x=y+" "+z;
    for(int i=0;i<nrcars;i++) {
        if(mygarage[i].getNumber() == x) {
            cout<<"\nFound: "<<mygarage[i].getBrand()<<" "<<mygarage[i].getModel();
            cout<<" ["<<mygarage[i].getNumber()<<"] - owner: "<<mygarage[i].getOwner()<<"\n";
            found = true;
        }
    }
    if(!found) cout<<"No car with that plate number found.\n";
}

int main()
{
    int nrcars = 0; //number of cars currently in the array
    int size; //cars added initially
    int opt = -1;
    cout<<"How many cars initially? ";
    cin>>size;
    garage *mygarage = new garage[size+1];
    do
    {
        if(opt==-1) cout<<"\n======WELCOME TO OUR GARAGE======\n";
        cout<<"\nChoose an option:\n";
        cout<<"1. Enter data\n";
        cout<<"2. Display data\n";
        cout<<"3. Search by Brand\n";
        cout<<"4. Search by Model\n";
        cout<<"5. Search by Owner\n";
        cout<<"6. Search by Plate number\n";
        cout<<"0. Exit\n";
        cout<<"Your option: ";
        cin>>opt;

        switch(opt)
        {
            case 1:
                enterdata(mygarage, size, nrcars);
                size=nrcars;
                break;
            case 2:
                display(mygarage, nrcars);
                break;
            case 3:
                searchBrand(mygarage, nrcars);
                break;
            case 4:
                searchModel(mygarage, nrcars);
                break;
            case 5:
                searchOwner(mygarage, nrcars);
                break;
            case 6:
                searchPlatenr(mygarage, nrcars);
                break;
            case 0:
                cout<<"Thank you for visiting our garage! Bye!\n";
                break;
            default:
                cout<<"Invalid option!\n";
        }
    } while (opt != 0);

    delete[] mygarage;
    return 0;
}
```

Bază de date pentru un supermarket

```cpp
#include <iostream>
using namespace std;
// Homework - do the same thing we did to the car project and apply to the supermarket project
class supermarket
{
    private:
        string brand;
        string type;
        int price;
        int stock;
        string barcode;
    public:
        supermarket(){
            brand="EMPTY";
            type="EMPTY";
            price=0;
            stock=0;
            barcode="EMPTY";
        }
    void setBrand(string b){  brand=b; }
    void setType(string t){ type=t; }
    void setPrice(int pr){ price=pr;}
    void setStock(int st){ stock=st;}
    void setBarcode(string bc){ barcode=bc;}
    void decrease(){ stock--;}
    string getBrand(){ return brand;}
    string getType(){ return type;}
    int getPrice(){ return price;}
    int getStock(){ return stock;}
    string getBarcode(){ return barcode;}
};
void enterData(supermarket *&lidl,int &items)
{
    string input_string;
    int input_int;
    int ntemp=0;
    do
    {
        cout<<"How many items would you like to add?";
        cin>>ntemp;
        if(ntemp<=0) return;
        else
        {
            int citems=items; //copy of items
            items+=ntemp;
            supermarket *temp=new supermarket[items];
            for(int i=0;i<citems;i++) temp[i]=lidl[i];
            for(int i=citems;i<items;i++)
            {
                cout<<"Brand "<<i+1<<": ";
                cin>>input_string;
                temp[i].setBrand(input_string);

                cout<<"Type "<<i+1<<": ";
                cin>>input_string;
                temp[i].setType(input_string);

                cout<<"Price "<<i+1<<": ";
                cin>>input_int;
                temp[i].setPrice(input_int);

                cout<<"Stock "<<i+1<<": ";
                cin>>input_int;
                temp[i].setStock(input_int);

                cout<<"Barcode "<<i+1<<": ";
                cin>>input_string;
                temp[i].setBarcode(input_string);
            }
            delete []lidl;
            lidl=temp;
            cout<<"Out of space! Would you like to add more items?(0=NO,1=YES) ";
            cin>>ntemp;
        }
    }while(ntemp>0);
}
//2
void displayData(supermarket *lidl,int items)
{
    cout<<"\n\n======ALL THE ITEMS SAVED======\n";
    for(int i=0;i<items;i++)
    {
        cout<<"ITEM "<<i+1<<lidl[i].getBrand()<<" "<<lidl[i].getType()<<" -> "<<lidl[i].getPrice()<<" euro -> "<<lidl[i].getStock()<<" left\n";
    }
}
//3
void searchBrand(supermarket *lidl,int items)
{
    cout<<"What brand are you looking for? ";
    string userInput="";
```

```
    cin>>userInput;
    bool found=false;
    for(int i=0;i<items;i++)
        if(userInput==lidl[i].getBrand())
        {
            if(!found) cout<<"We have found:\n";
            cout<<lidl[i].getBrand()<<" "<<lidl[i].getType()<<" -> "<<lidl[i].getPrice()<<" euro -> "<<lidl[i].getStock()<<" left\n";
            found=true;
        }
}
//4
void searchType(supermarket *lidl,int items)
{
    cout<<"What type of item are you looking for? ";
    string userInput="";
    cin>>userInput;
    bool found=false;
    for(int i=0;i<items;i++)
        if(userInput==lidl[i].getType())
        {
            if(!found) cout<<"We have found:\n";
            cout<<lidl[i].getBrand()<<" "<<lidl[i].getType()<<" -> "<<lidl[i].getPrice()<<" euro -> "<<lidl[i].getStock()<<" left\n";
            found=true;
        }
}
//5
void scanBarcode(supermarket *lidl,int items)
{
    cout<<"Enter the barcode of the scanned item: ";
    string userInput="";
    cin>>userInput;
    cout<<"How many of this item do you want to buy? ";
    int number,indexnr=-1;
    cin>>number;
    for(int i=0;i<items;i++)
        if(userInput==lidl[i].getBarcode())
        {
            indexnr=i;
            //cout<<lidl[i].getBrand()<<" "<<lidl[i].getType()<<" -> "<<lidl[i].getPrice()<<" euro -> ";
            break;
        }
    if(indexnr==-1) cout<<"Sorry, we do not have this item.";
    else if(lidl[indexnr].getStock()<number) cout<<"Sorry, we do not have "<<number<<" items in stock.";
        else
        {
            for(int i=0; i<number; i++)
                lidl[indexnr].decrease();
            cout<<lidl[indexnr].getBrand()<<" "<<lidl[indexnr].getType()<<" -> "<<lidl[indexnr].getPrice()<<" euro -> "<<lidl[indexnr].getStock()<<" left\n";
        }
}
int main()
{
    int opt=-1 , items=0;
    supermarket *lidl = new supermarket[items];
    do
    {
        if(opt==-1) cout<<"\n======WELCOME TO OUR SUPERMARKET======\n";
        cout<<"\nChoose an option:\n";
        cout<<"1. Enter data\n";
        cout<<"2. Display data\n";
        cout<<"3. Search by Brand\n";
        cout<<"4. Search by Type\n";
        cout<<"5. Scan barcode\n";
        cout<<"0. Exit\n";
        cout<<"Your option: ";
        cin>>opt;
        switch(opt)
        {
            case 1:
                enterData(lidl,items);
                break;
            case 2:
                displayData(lidl,items);
                break;
            case 3:
                searchBrand(lidl,items);
                break;
            case 4:
                searchType(lidl,items);
                break;
            case 5:
                scanBarcode(lidl,items);
                break;
            default:
                cout<<"Invalid option!\n";
        }
    }while(opt!=0);
    return 0;
}
```

```cpp
#include <iostream>
using namespace std;
//CREATE THE CLASS
class car
{
    private:
        string brand;
        string model;
    public:
        car(){
            brand="EMPTY";
            model="EMPTY";
        }
        void setBrand(string B){
            brand=B;
        }
        void setModel(string M){
            model=M;
        }
        string getBrand(){
            return brand;
        }
        string getModel(){
            return model;
        }
};

car *readData(car *, int & ,int &);
void displayData(car *,int);
int searchByBrand(car *,int);
void editData(car *,int);

int main(){

    int ARRAYSIZE=4;
    int nextAvailPos=0;
    car *carsArray;
    carsArray=new car[ARRAYSIZE];
    int choice=-1;
    int searchIndex=-1;
    do
    {
        cout<<"Please Choose from the menu below: "<<endl;
        cout<<"1. Enter Data"<<endl;
        cout<<"2. Display Data"<<endl;
        cout<<"3. Search By Brand"<<endl;
        cout<<"0. Exit"<<endl;
        cout<<"Enter option: ";
        cin>>choice;

        switch(choice){
            case 1:
                carsArray=readData(carsArray,ARRAYSIZE, nextAvailPos);
                break;
            case 2:
                /*because we are growing the array dynamically,the variable ARRAYSIZE is the TOTAL SIZE OF THE ARRAYSIZE,
                which may contain empty positions. The variable nextAvailPos tells us the last index which contains data*/
                displayData(carsArray,nextAvailPos);
                break;
            case 3:
                searchIndex=searchByBrand(carsArray,nextAvailPos);
                break;
            case 4: //edit data inside the array
                /*call the search function first and get the index that you want to change.
                once you have the index send it to the editData function. the editData function
                will first, show you what is saved at the current location and then give you the option
                to input new data*/
                searchIndex=searchByBrand(carsArray,nextAvailPos);
                editData(carsArray,searchIndex);
            case 0:
                break;
        }
    }while (choice!=0);

    return 0;
}
//function car *readData(car *, int)
//the function populates the array with information
//from the user
//the function accepts a pointer to a car object(the array)\
//and the size of the array
//the function return back a pointer to aa car object which is the array
//and is now populated with data.
car *readData(car *arr, int &arrSize,int &nextPos)
{
    int numcars=0, //how many cars the user is going to input
    newSize=0; //the new size of the array which is calculated by adding arraySize+numCars
    string tstring; //temporary string to read keyboard input
    car *tmp; //temporary car object to copy everything from the car array nad grow the array;
    cout<<"How many cars are you entering: ";
    cin>>numcars; //read from the keyboard how many cars the user needs to input
    for (int i=0;i<numcars;i++)//repeat the reading process 'numCars' times
    {
        if( nextPos>=arrSize)//first check if the array is full
        {
           newSize=arrSize+numcars;//if you got here the array is full calculate the new size
           tmp=new car[newSize]; //allocate temporary space for the new bigger array
           for (int j=0;j<arrSize;j++)[//copy everything from the small array to the new bigger one
               tmp[j]=arr[j];
            }
            arrSize=newSize; //save the newsize into arrSize (update the arrSize).

            delete []arr; //release the memory from the old array back to the OS
            arr=tmp; //set the pointer of the array to point to the new allocated space

        }
        cout<<"Enter BRAND for car["<<nextPos<<"]";
        cin>>tstring;
        arr[nextPos].setBrand(tstring);
        cout<<"Enter MODEL for car["<<nextPos<<"]";
        cin>>tstring;
        arr[nextPos].setModel(tstring);
        nextPos++;
    }
    return arr;
}
//void displayData(car *,int)
//function displayData will print all data that we saved in our object array at any given time
void displayData(car *arr,int arrSize)
{
    for(int i=0;i<arrSize;i++)
    {
        cout<<"-----Car "<<i+1<<" -----"<<"\n";
        cout<<arr[i].getBrand()<<"\n";
        cout<<arr[i].getModel()<<"\n";
    }
}

int searchByBrand(car *arr,int arrSize)
{
    string tstr; // temporary string to read data from keyboard
    cout<<"Enter the breand you are looking for: ";
    int index=-1;
    cin>>tstr;
    for(int i=0;i<arrSize;i++)
        if(arr[i].getBrand()==tstr)
        {
            cout<<"Index found at position "<<i<<"\n";
            index=i;
        }
    if(index==-1) cout<<tstr<<" is not found.\n";
    return index;
}

void editData(car *arr,int pos)
{
    cout<<"-----Car "<<pos+1<<"-----";
    cout<<arr[pos].getBrand()<<" "<<arr[pos].getModel()<<"\n";
    cout<<"Do you want to replace the data on position "<<pos+1<<" ?(1=YES/0=NO)";
    int ok;
    cin>>ok;
    if(ok==0) return;
    else if(ok==1)
        {
            string userInput="";
            cout<<"Enter brand: ";
            cin>>userInput;
            arr[pos].setBrand(userInput);
            cout<<"Enter model: ";
            cin>>userInput;
            arr[pos].setModel(userInput);
            cout<<"Data updated succesfully!\n";
        }
        else cout<<"Invalid option!";
}
```