TASK 2 OOP Report;

string Name: "Aly_Muhammed_Elruby";

string Number: "01127039571";

1- <robot.h>

```cpp
1   #ifndef ROBOT_H
2   #define ROBOT_H
3   #include <iostream>
4
5   using namespace std;
6
7   class robot //creating class for robot obj
8   {
9   public:
10      string name; //attributes for name , price,rented or not , date of rent and function to be done by robot
11      float price;
12      bool rented;
13      string date[100];
14      int norent;//new variable to store how many time this robot has been rented
15  public:
16      int func;
17      void setName();//declaring functions to deal with attributes;
18      void setPrice();
19      void rent();
20      void unrent();
21      void chooseFunc();
22      robot();
23      void disp();
24      void savedate();
25  };
26
27  #endif // ROBOT_H
```

Attributes:

-name: to store the name of the robot

-price: store the price per day

-date array: store the date of every rent

-norent: store how many time it has been rented

-func: the number of the function that the robot do

Methods:

-setName: to make the storing of name easier

-setPrice: to make the storing of price easier

-rent: to set the rented var

-unrent: to reset the rented var

-choseFunc: to chose which function that the robot do

-disp: to Display all info about the robot

-savedate: to save the renting date in the date array

2- <user.h>

```cpp
#ifndef USER_H
#define USER_H
#include <iostream>
using namespace std;

class user
{
public:
    string name;
    string num;
    string email;
    string robouse[100];
    int numused;//number of how many u have rented from our company
    void setname();
    void setmail();
    void setnum();
    user();
    void disp();
    void robused(string);
};

#endif // USER_H
```

Attributes:

-name:

-num: phone number

-email;

-robouse array: array to store which robot has been rented every time the user use our beautiful company.

-numused: to store how many time he rented

Methods:

-setname:

-setmail:

-setnum:

-disp:

-robuse: to add the name of the robot used to the robouse array

3-robot.cpp

```cpp
#include <iostream>
using namespace std;
void clean(){}//declaring functions for the robot to be used in chosefunc function
void drive(){}//i could used just a variable to know hich func to do but i have done this method to make the code more useful for future applications
void solve(){}
void cook(){}
void hair(){}
robot::robot()//to intialize the robot
{
    norent=0;
    func=0;

}
void robot::setName(){//set the name
    cout<<"enter the name of robot\n";
    cin>>name;
}
void robot::setPrice(){//to set the price
    cout<<"enter the price per day\n";
    cin>>price;
}
void robot::rent(){//to set the rent
    rented=1;
}
void robot::unrent(){//to reset the rent
    rented =0;
}
void robot::chooseFunc(){//to chose the function of the robot
    cout<<"\n1-Cleaner Robot\n2-Driver Robot\n3-Assignment Solver Robot\n4-Cook Robot\n5-Hairstylist Robot\n";
    cin>>func;
    switch(func){
        case 1: clean(); break;//those function must be a combination between HW and SW so i leave it to be defienf when it will be realy used with HW
        case 2: drive(); break;
        case 3: solve(); break;
        case 4: cook(); break;
        case 5: hair(); break;
    }
}
void robot::disp(){//to display the information about the robot
    cout<<"name:"<<name<<"  price:"<<price<<"  func id:"<<func<<"  is rented:"<<boolalpha<<rented;
    for(int o=0;o<norent;o++){
        cout<<" "<<date[o]<<" ";
    }
    cout<<endl;
}
void robot::savedate(){//to save the date of renting of the robot
    int repeat=1;
    while(repeat){
        cout<<"\nenter the date (in the format: 01/12/2022) you want to rent robot on\n";//to check if the user has enterd a vaild date in thesame format
        cin>>date[norent];
        if((date[norent][2]=='/')&&(date[norent][5]=='/')){
            repeat=0;//i could have used break insted of this var but i prefer this method IDK why +_+
        }
        else{
            cout<<"Error date format"<<endl;
        }
    }
    norent++;
}
```

I guess that the comment explain every thing but I'll do briefly explanation:

(clean-drive-solve-cook-hair) those are just function that do nothing to be programmed in the future.

(rent -unrent) to set and reset the var rented;

(chosefunc) to chose which function that the robot do;

(disp) to display the information about the robot;

(savedate) to save the date of renting of the robot

It has a feature that doesn't accept any wrong date;

4-user.cpp

```cpp
1   #include "user.h"
2   user::user()//intialize user
3   {
4       numused=0;
5   }
6   void user::setname(){//function to set the name
7       cout<<"enter the user name\n";
8       cin>>name;
9   }
10  void user::setmail(){//function to set the mail of user
11      cout<<"enter the email\n";
12      cin>>email;
13  }
14  void user::setnum(){//function to set the phone number of user
15      cout<<"enter the telephone number\n";
16      cin>>num;
17  }
18  void user::disp(){//function to display the info about the user
19      cout<<"name:"<<name<<"  email:"<<email<<"  phone num:"<<num;
20      for(int o=0;o<numused;o++){//to display the times that he has rent any robot
21          cout<<" "<<robouse[o]<<" ";
22      }
23      cout<<endl;
24  }
25  void user::robused(string x){//function to store every rent in the renting array
26      robouse[numused]=x;
27      numused++;
28  }
```

(robused) : Function to store every rent in the renting array by storing the name of the robot rented in the robuse array;

5-main.cpp

```cpp
#include <iostream>
#include<robot.h>
#include <ctime>//i was hopping to use time in my programm but my info about that is not enough to start using it
#include "user.h"
void add_robot();
void add_user();
void dispuser();
void disprobot();
void searchuser();
void searchrobot();
int showavail();
void rent();
int i=3;// counter for robots to add in the array
int j=3; // counter for users
robot a[100];//i made this var global to access them without using call by ref in the program i know it's worse in excution but easily to apply
user b[100];
using namespace std;
int main()
{
    int x;
    a[0].name= "robo1"; a[0].price=90.50;a[0].rented=0;a[0].func=1;// creating 3 obj from each class as the ex
    a[1].name="robo2"; a[1].price=70.50;a[1].rented=0;a[1].func=2;
    a[2].name="robo3"; a[2].price=80.50;a[2].rented=0;a[2].func=3;
    b[0].name="Alien0";b[0].email="an0@y.com";b[0].num="010";
    b[1].name="Alien1";b[1].email="an1@y.com";b[1].num="011";
    b[2].name="Alien2";b[2].email="an2@y.com";b[2].num="012";
    while(true){
    cout<<"Enter NO.function to do?\n1-Add Robot\n2-Add User\n3-Disp All users\n4-Disp all Robots\n5-Search robot by name\n6-Search User by name\n7-Rent\n8-Exit\n";
    cin>>x;
    switch(x){
    case 1: add_robot();break;
    case 2: add_user();break;
    case 3: dispuser();break;
    case 4: disprobot();break;
    case 5: searchrobot();break;
    case 6: searchuser();break;
    case 7: rent();break;
    case 8: return 0;
    default:cout<<"\nerror\n";
    }
}
    return 0;
}
void add_robot(){//creating function to add a new robot ti=o the array
    a[i].setName();
    a[i].setPrice();
    a[i].chooseFunc();
    i++;
}
void add_user(){//creating function to add a new user to the array of users
    b[j].setname();
```

```cpp
51        b[j].setname();
52        b[j].setmail();
53        b[j].setnum();
54        j++;
55    }
56 ▼ void dispuser(){//function to display every used user in the array of users;
57 ▼      for(int q=0;q<j;q++){
58            cout<<q<<"-";
59            b[q].disp();
60        }
61    }
62 ▼ void disprobot(){//function to display every used robot in the array of robots
63 ▼          for(int q=0;q<i;q++){
64                a[q].disp();
65        }
66    }
67 ▼ void searchuser(){//function to search a name whithin the array of users
68            string search;
69            cout<<"\nenter  the name to search\n";
70            cin>>search;
71 ▼          for(int q =0; q< j; q++){
72 ▼              if(b[q].name.find(search, 0) != std::string::npos){
73                    b[q].disp();
74                }
75            }
76        }
77 ▼ void searchrobot(){//function to search a name whithin the array of users
78            string search;
79            cout<<"\nenter  the name to search\n";
80            cin>> search;
81 ▼          for(int q =0; q< i; q++){
82 ▼              if(a[q].name.find(search, 0) != std::string::npos){
83                    a[q].disp();
84                }
85            }
86        }
87 ▼ int showavail(){//to show the available robot to rent
88        int num;
89 ▼      for(int k=0;k<i;k++){
90            if(a[k].rented==0)
91                cout<<k <<"-"<<a[k].name<<endl;
92        }
93      cout<<"enter the number of the robot to rent"<<endl;
94      cin>>num;
95      return num;
96    }
97 ▼ void rent(){//this function is a combination of other functions to make the rent
98        int x,y;
99        dispuser();
100       cout<<"enter the No of the user to rent\n";
101       cin>>y;
102       x=showavail();
103       a[x].savedate();
104       b[y].robused(a[x].name);
105       a[x].rent();
106       cout<<"\nrent successfull\n";
107   }
```

First of all we defined two global arrays of objects one for robots and one for users, then 2 other global var one to be a counter for the array of robots to know how many robot in our sys and the other is for user array counter.

Then, we defined the 3 robots and the 3 users we have.

Then, display a message of the available functions that the program can do and the user choose between them

(addrobot()): this function calls setname ,setprice and chosefunc and increases the array counter by one;

(adduser()): do the same thing but for user

(dispuser()): it loops for all users we have and calls disp function to every one of them.

(disprobot()): do the same thing but for robots;

(searchuser()): search for user details by his name by comparing the name of every user in the system with that name then if found it calls disp function for that user

(searchrobot()): do the same thing for robot;

(showavail()): this function check the rented var in every robot in the system to show the available robots to be rented;

(rent()): this function to rent a robot for a user ,first it declares a new 2 var one to be point at the user in the array of user and the second to point at the robot to be rented in the array of robots.

Then, it calls dispuser() to disp all users and choose which user want to rent a robot.

Then, it calls showavail() to show available robots to t=rent.

Then, it calls savedate() to save the date of the renting ib the date array of robot that has been choosed.

Then, it calls robuse() to save the name of robot used in the robouse array in the user that want to rent.

Then, it calls rent() function to set the rented var in the robot, then it print rent successful.