```
#include <iostream>
#include <string>/*to use sunstr & other stuff*/
#include <iomanip>/*used for setfill & other stuff*/
#include <sstream>/*to read strings from memory*/

using namespace std;

struct Patient {
   long long id;
   string name;
   string surname;
   int age;
   string depertman;
   double bloodSugar;
   double colestrol;
   double heartDisease;
};

/*functions prototypes (i guess it looks better)*/
double heartDiseaseRate(int age,double bloodSugar,double colestrol);
void DisplayRow( const Patient& p);
void DisplayTable(const Patient* arr, int size);
void List(const Patient* arr, int size);
void Find(Patient arr[], int size, long long target);
void Edit(Patient arr[], int index, int size);
Patient* New(Patient arr[], int size);
```

```
Patient* Delete(Patient arr[], int size, int index, int& newSize);

int main() {

   Patient * list = new Patient[2];
   int size = 0;

   int choice;
   while (true) {/*to keep working till u exit*/
      cout << "MENU\n";
      cout << "1 - New\n";
      cout << "2 - Find\n";
      cout << "3 - List\n";
      cout << "4 - Exit\n";
      cout << "Enter option: ";
      if (!(cin >> choice)) break;
      cin.ignore(10000, '\n');/*to remove the leftover newline*/

      if (choice == 1) {

         list = New(list, size);
         ++size;
      } else if (choice == 2) {

         cout << "Find by id: ";
        long long target; /*to stay able to hold many digits*/
```

```
 if (!(cin >>target)) break;
 cin.ignore(10000,'\n');
  Find(list, size, target);

 cout <<"Would you like to edit or delete a listed entry? (y/n): ";
char resp;
 cin >> resp;
if (resp == 'y' || resp == 'Y') /*in case*/{
     cout << "Enter index of entry: ";
     int idx;
 if (!(cin >> idx)) break;
     cin.ignore(10000, '\n');
     cout << "1 - Edit\n2 - Delete\nEnter option: ";
     int op;
  if (!(cin >> op)) break;
     cin.ignore(10000, '\n');
   if (op == 1) {
        Edit(list, idx, size);
  } else if (op == 2) {
        int newSize = size;
        list = Delete(list, size, idx, newSize);
        size = newSize;
   } else {
        cout << "Invalid option.\n";
     }
  }
```

```
   } else if (choice == 3) {


     List(list, size);
      cout<<endl;
      cout << "Would you like to delete all the list ? (y/n): ";
   char resp;
     cin >> resp;
      if (resp == 'y' || resp == 'Y') {
        delete[]list;
      list = new Patient[2];
        size=0;
      cout<<"all entered list has been deleted";
      }
  } else if (choice == 4) {
      cout << "Exiting.\n";
      break;
  } else {
      cout << "Invalid option. Try again.\n";
   }


   cout << endl   ;
}



delete[] list;
return 0;
```

```
}

/*this function is unnecessary work, trying to get more grades, that is according to google*/
double heartDiseaseRate(int age,double bloodSugar,double colestrol){
 double rate=0;

 if(age<30&&age>=0 &&bloodSugar>=200&&colestrol>=160){
  rate =6;
 }

  if(age<30&&age>=0 &&bloodSugar<200&&colestrol<160){
  rate =1.5;
 }

   if(age<30&&age>=0 &&bloodSugar>=200&&colestrol<160){
  rate =3;
 }

   if(age<30&&age>=0 &&bloodSugar<200&&colestrol>=160){
  rate =2;
 }

 if(age<40&&age>=30 &&bloodSugar>=200&&colestrol>=160){
  rate =12;
 }
```

```
 if(age<40&&age>=30 &&bloodSugar<200&&colestrol<160){
 rate =2.5;
}

  if(age<40&&age>=30 &&bloodSugar>=200&&colestrol<160){
 rate =6;
}

  if(age<40&&age>=30 &&bloodSugar<200&&colestrol>=160){
 rate =5;
}

if(age<50&&age>=40 &&bloodSugar>=200&&colestrol>=160){
 rate =15;
}

 if(age<50&&age>=40 &&bloodSugar<200&&colestrol<160){
 rate =5;
}

  if(age<50&&age>=40 &&bloodSugar>=200&&colestrol<160){
 rate =10;
}

  if(age<50&&age>=40 &&bloodSugar<200&&colestrol>=160){
 rate =8;
```

```
}

if(age<60&&age>=50 &&bloodSugar>=200&&colestrol>=160){
  rate =35;
}

  if(age<60&&age>=50 &&bloodSugar<200&&colestrol<160){
  rate =10;
}

   if(age<60&&age>=50 &&bloodSugar>=200&&colestrol<160){
  rate =20;
}

   if(age<60&&age>=50 &&bloodSugar<200&&colestrol>=160){
  rate =20;
}

if(age<70&&age>=60 &&bloodSugar>=200&&colestrol>=160){
  rate =50;
}

  if(age<70&&age>=60 &&bloodSugar<200&&colestrol<160){
  rate =15;
}
```

```
  if(age<70&&age>=60 &&bloodSugar>=200&&colestrol<160){
 rate =30;
}

  if(age<70&&age>=60 &&bloodSugar<200&&colestrol>=160){
 rate =30;
}

if(age<80&&age>=70 &&bloodSugar>=200&&colestrol>=160){
 rate =70;
}

 if(age<80&&age>=70 &&bloodSugar<200&&colestrol<160){
 rate =25;
}

  if(age<80&&age>=70 &&bloodSugar>=200&&colestrol<160){
 rate =40;
}

  if(age<80&&age>=70 &&bloodSugar<200&&colestrol>=160){
 rate =40;
}

if(age>=80 &&bloodSugar>=200&&colestrol>=160){
 rate =80;
```

```
 }


  if(age>=80 &&bloodSugar<200&&colestrol<160){
  rate =40;
 }


   if(age>=80 &&bloodSugar>=200&&colestrol<160){
  rate =60;
 }


   if(age>=80 &&bloodSugar<200&&colestrol>=160){
  rate =60;
 }
 return rate;
}


void DisplayRow( const Patient  & p) {
 /*we need to keep the IDs under each other even if the user input less than 11 digits id, i know sefill() is not included in the course but i didn't find a better way included, finding by id still works by the user inputed id though, i will explain setfill to prove its human work since its not included because we will use it a lot with substr.
 setfill &substr work : used to fill the gap by something so that when we display the list each colomn elements stay under eachother,setfill for the numbers to fill with zeros and sbstr to fill the gap by spaces for strings*/
  cout << setw(11)<<setfill('0')<<p.id<<setfill(' ') << "  " ;


  string name = (p.name.size() > 7) ? p.name.substr(0, 7) : p.name;
```

```
    cout << left << setw(7) << name << right << " ";

    string sname = (p.surname.size() > 7) ? p.surname.substr(0, 7) : p.surname;
    cout << left << setw(7) << sname << right << "   ";

    cout << setw(3)<<setfill('0')<< p.age <<setfill(' ') << "   ";

    string dept = (p.depertman.size() > 11) ? p.depertman.substr(0, 11) : p.depertman;
    cout << left << setw(11) << dept << right << "  ";

    cout << setw(3) << setfill('0')<<p.bloodSugar<<setfill(' ')<<"     ";

    cout << setw(3) << setfill('0')<<p.colestrol<<setfill(' ') ;



    cout <<"         "<< setw(3) << setfill('0')<<p.heartDisease<<setfill(' ') <<"%"<<endl;

}

void DisplayTable(const Patient* arr, int size) {
    if (size <= 0) {
        cout << "no patients to display.\n";
        return;
    }
```

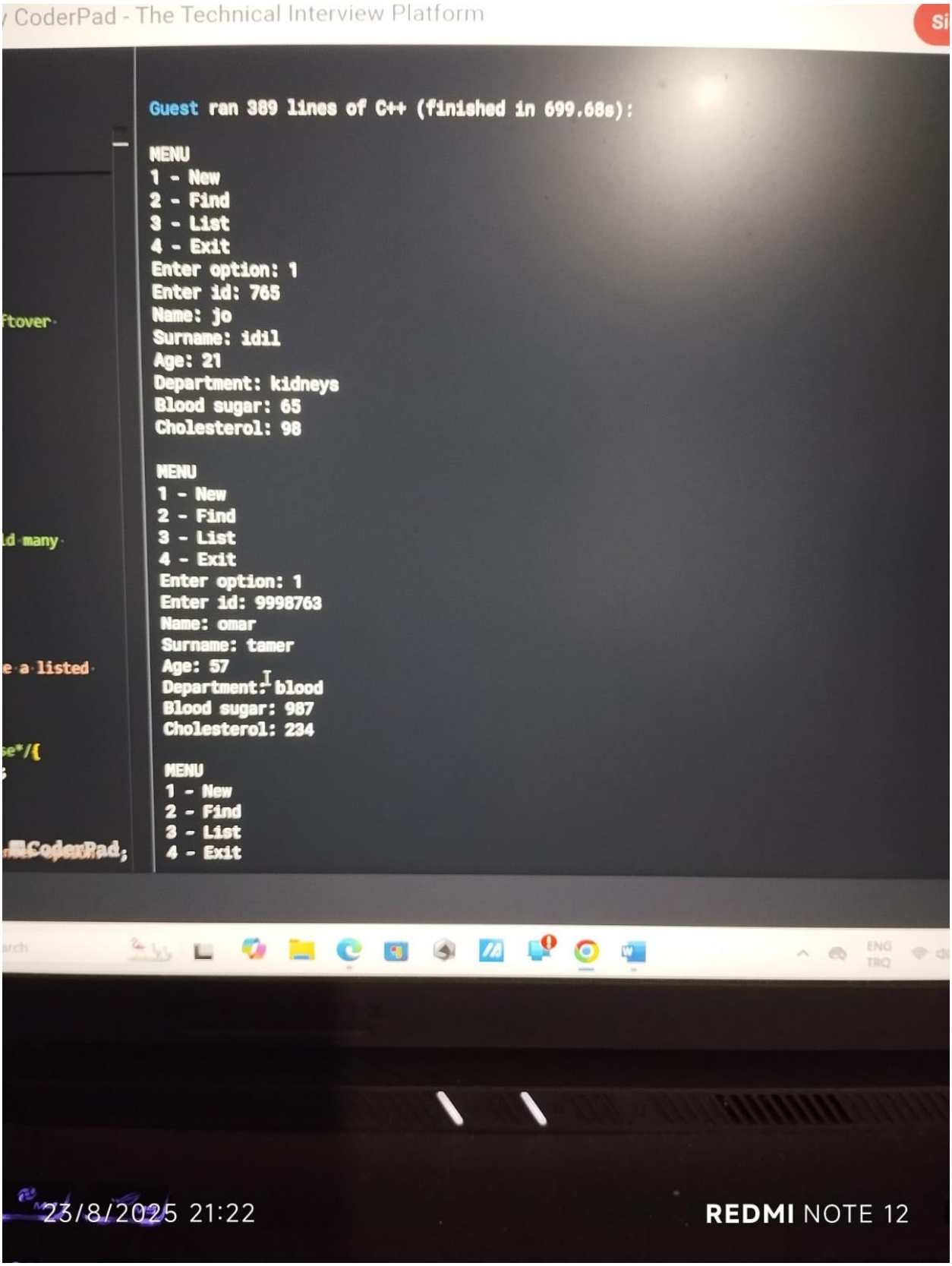
```
   cout << "Index ID     Name   Surname  Age  Department  Sugar  Cholesterol  Heart
Disease Rate\n";
   cout << "-----------------------------------------------------------------------------------------------\n";
   for (int i = 0; i<size; ++i) {
      cout << i << "  ";
      DisplayRow(arr[i]);
   }
}

void List(const Patient * arr,int size) {
   DisplayTable(arr,size);
}

void Find(Patient arr[], int size, long long target) {
   bool found = false;
   for (int i = 0; i < size; ++i) {
      if (arr[i].id == target) {
         cout << "Found at index " << i << ": "<<endl;
        DisplayRow(arr[i]);
         found = true;
      }
   }
   if (!found) {
      cout << "No patient found with ID equalled to " << target << ".\n";
   }
}
```

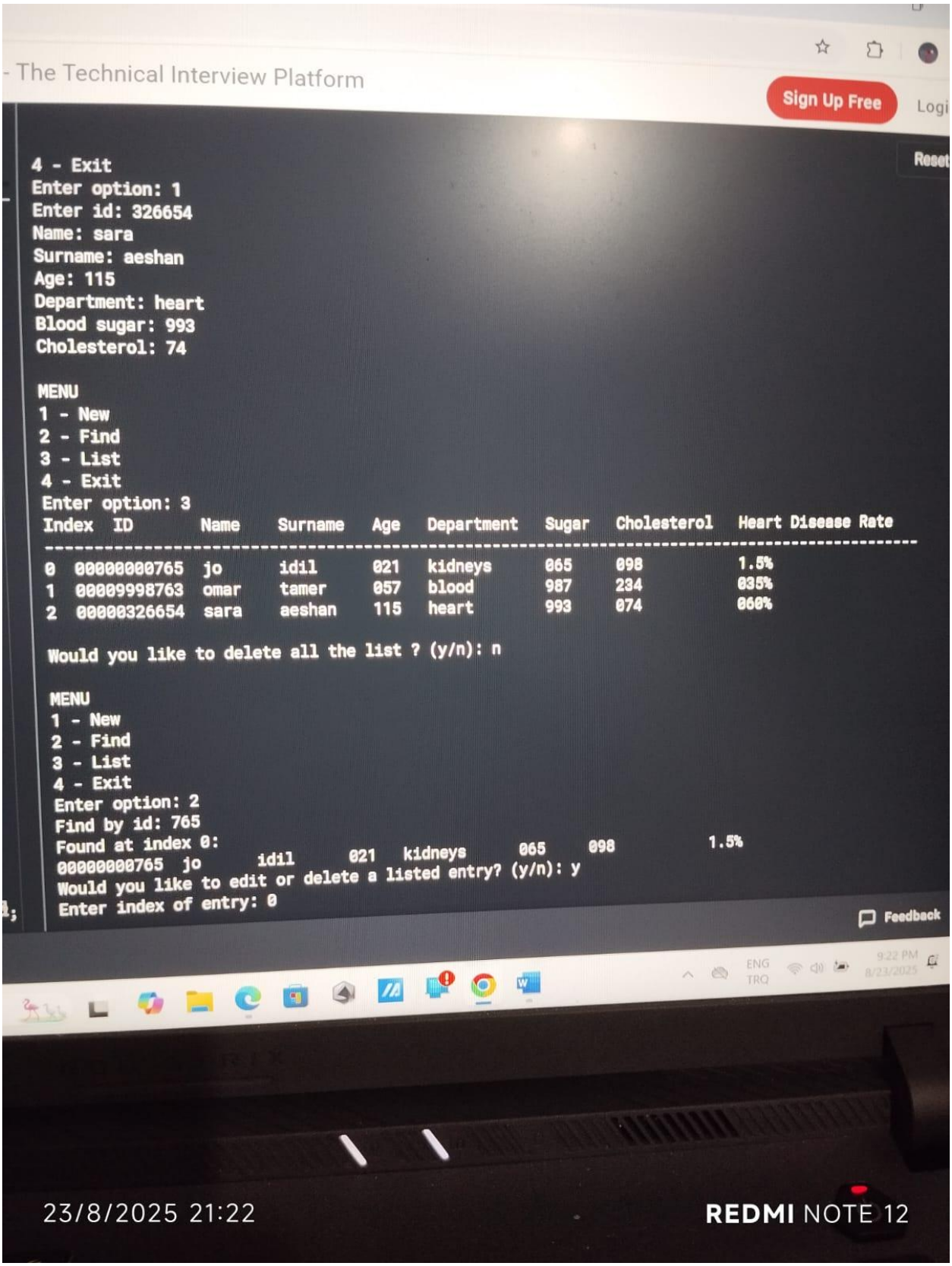
```
Patient * New(Patient arr[], int size) {

   Patient* newArr = new Patient[size + 1];

   for (int i = 0; i < size; ++i) newArr[i] = arr[i];

   cout << "Enter id: ";
  cin >> newArr[size].id;
   cout << "Name: ";
  cin >> newArr[size].name;
   cout << "Surname: ";
 cin >> newArr[size].surname;
   cout << "Age: ";
  cin >> newArr[size].age;
  cout << "Department: ";
   cin >> newArr[size].depertman;
 cout << "Blood sugar: ";
   cin >> newArr[size].bloodSugar;
  cout << "Cholesterol: ";
   cin >> newArr[size].colestrol;

  newArr[size].heartDisease=heartDiseaseRate(newArr[size].age,newArr[size].bloodSugar,
newArr[size].colestrol);
 delete[] arr;
```

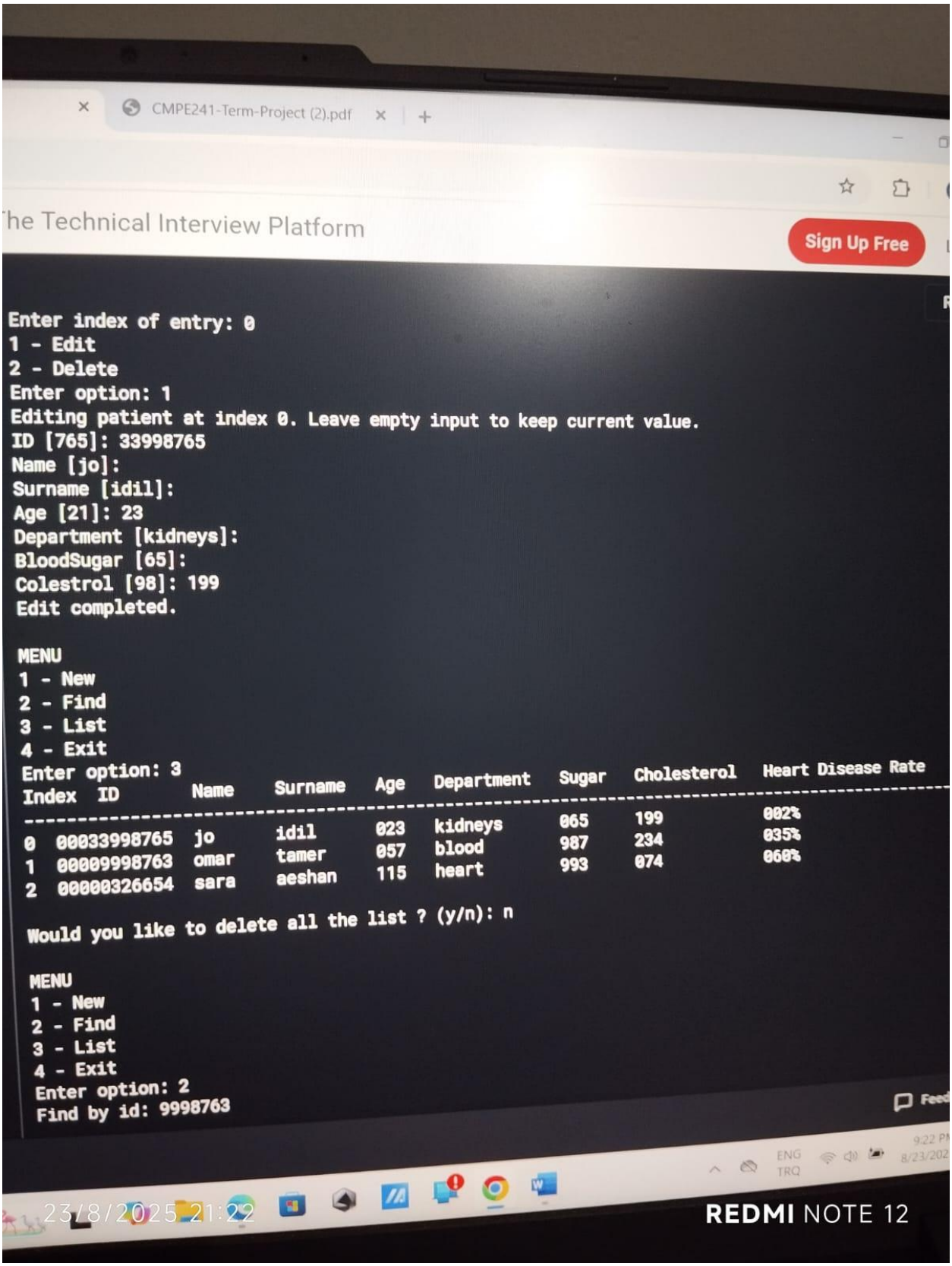
```
  return newArr;
}

void Edit(Patient arr[], int index, int size) {
   if (index < 0 || index >= size) {
      cout << "Invalid index.\n";
      return;
   }
   Patient& p = arr[index];
   cout << "Editing patient at index " << index << ". Leave empty input to keep current value.\n";
/*i will use  std::istringstream iss(line);  to read strings from memory to support the leaving empty if u dont want to change the values , if the user clıcked enter the if(!string.empty()) will catch it,not included in slides but needed it*/

   cout << "ID [" << p.id << "]: ";
   string line;
   getline(cin, line);
   if (!line.empty()) {
      std::istringstream iss(line);
      iss >> p.id;
   }

   cout << "Name [" << p.name << "]: ";
   getline(cin, line);
   if (!line.empty()) p.name = line;
```

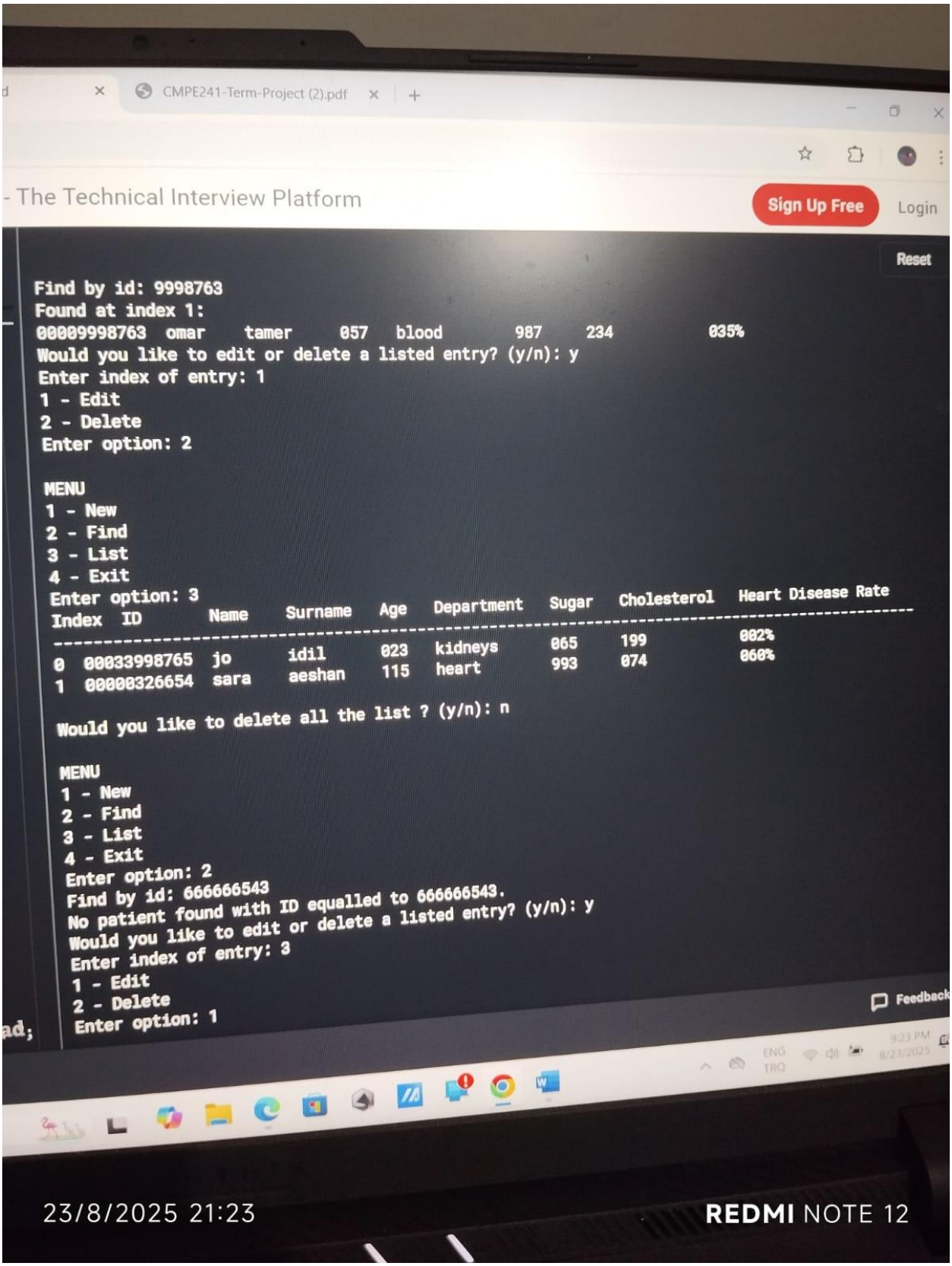
```
cout << "Surname [" << p.surname << "]: ";
getline(cin, line);
if (!line.empty()) p.surname = line;

cout << "Age [" << p.age << "]: ";
getline(cin, line);
if (!line.empty()) {
   std::istringstream iss(line);
   iss >> p.age;
}

cout << "Department [" << p.depertman << "]: ";
getline(cin, line);
if (!line.empty()) p.depertman = line;

cout << "BloodSugar [" << p.bloodSugar << "]: ";
getline(cin, line);
if (!line.empty()) {
   std::istringstream iss(line);
   iss >> p.bloodSugar;
}

cout << "Colestrol [" << p.colestrol << "]: ";
getline(cin, line);
if (!line.empty()) {
   std::istringstream iss(line);
```

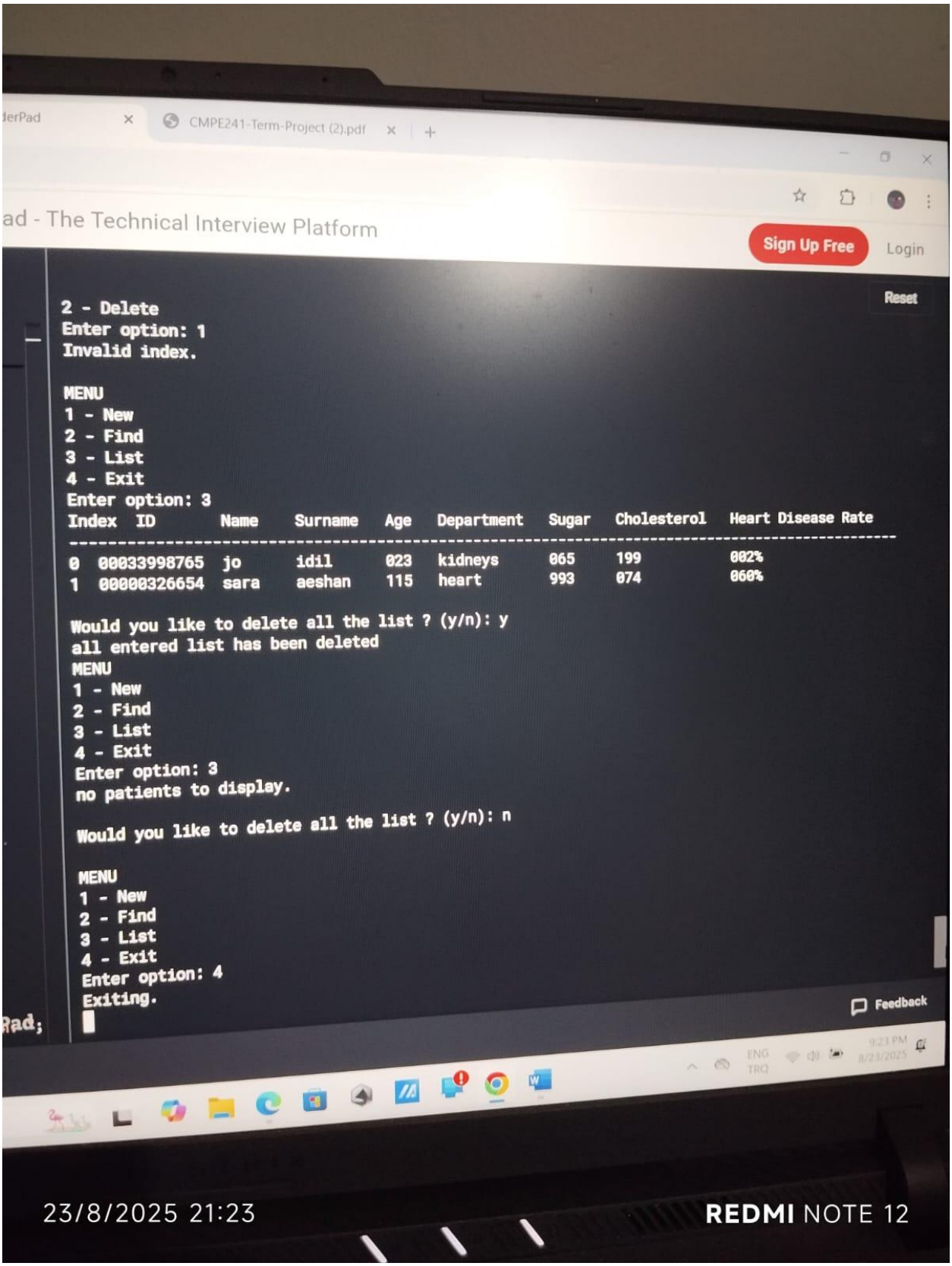
```
        iss >> p.colestrol;
    }

    p.heartDisease = heartDiseaseRate(p.age,p.bloodSugar, p.colestrol);
    cout << "Edit completed.\n";
}

/*this function will delete only 1 row, to delete the whole list we added delete[]list in the main function*/
Patient * Delete(Patient arr[], int size, int index, int& newSize) {
    if (index < 0 || index >= size) {
        cout << "Invalid index.\n";
        newSize = size;
        return arr;
    }
    int sz = size - 1;
    Patient* newArr = new Patient[sz];
    for (int i = 0, j = 0; i < size; ++i) {
        if (i == index) continue;
        newArr[j++] = arr[i];
    }
    delete[] arr;
    newSize = sz;
    return newArr;

}
```


CoderPad - The Technical Interview Platform
Guest ran 389 lines of C++ (finished in 699.68s):
MENU
1 - New
2 - Find
3 - List
4 - Exit
Enter option: 1
Enter id: 765
Name: jo
Surname: idil
Age: 21
Department: kidneys
Blood sugar: 65
Cholesterol: 98
MENU
1 - New
2 - Find
3 - List
4 - Exit
Enter option: 1
Enter id: 9998763
Name: omar
Surname: tamer
Age: 57
Department: blood
Blood sugar: 987
Cholesterol: 234
MENU
1 - New
2 - Find
3 - List
4 - Exit
23/8/2025 21:22
REDMI NOTE 12


- The Technical Interview Platform
Sign Up Free
Logi
Reset
4 - Exit
Enter option: 1
Enter id: 326654
Name: sara
Surname: aeshan
Age: 115
Department: heart
Blood sugar: 993
Cholesterol: 74
MENU
1 - New
2 - Find
3 - List
4 - Exit
Enter option: 3
Index ID Name Surname Age Department Sugar Cholesterol Heart Disease Rate
0 00000000765 jo idil 021 kidneys 065 098 1.5%
1 00009998763 omar tamer 057 blood 987 234 035%
2 00000326654 sara aeshan 115 heart 993 074 060%
Would you like to delete all the list ? (y/n): n
MENU
1 - New
2 - Find
3 - List
4 - Exit
Enter option: 2
Find by id: 765
Found at index 0:
00000000765 jo idil 021 kidneys 065 098 1.5%
Would you like to edit or delete a listed entry? (y/n): y
Enter index of entry: 0
Feedback
ENG
TRQ
9:22 PM
8/23/2025
23/8/2025 21:22
REDMI NOTE 12


CMPE241-Term-Project (2).pdf
he Technical Interview Platform
Sign Up Free
Enter index of entry: 0
1 - Edit
2 - Delete
Enter option: 1
Editing patient at index 0. Leave empty input to keep current value.
ID [765]: 33998765
Name [jo]:
Surname [idil]:
Age [21]: 23
Department [kidneys]:
BloodSugar [65]:
Colestrol [98]: 199
Edit completed.
MENU
1 - New
2 - Find
3 - List
4 - Exit
Enter option: 3
Index ID Name Surname Age Department Sugar Cholesterol Heart Disease Rate
0 00033998765 jo idil 023 kidneys 065 199 002%
1 00009998763 omar tamer 057 blood 987 234 035%
2 00000326654 sara aeshan 115 heart 993 074 060%
Would you like to delete all the list ? (y/n): n
MENU
1 - New
2 - Find
3 - List
4 - Exit
Enter option: 2
Find by id: 9998763
23/8/2025 21:22
REDMI NOTE 12


CMPE241-Term-Project (2).pdf
- The Technical Interview Platform
Sign Up Free
Login
Reset
Find by id: 9998763
Found at index 1:
00009998763 omar tamer 057 blood 987 234 035%
Would you like to edit or delete a listed entry? (y/n): y
Enter index of entry: 1
1 - Edit
2 - Delete
Enter option: 2
MENU
1 - New
2 - Find
3 - List
4 - Exit
Enter option: 3
Index ID Name Surname Age Department Sugar Cholesterol Heart Disease Rate
0 00033998765 jo idil 023 kidneys 065 199 002%
1 00000326654 sara aeshan 115 heart 993 074 060%
Would you like to delete all the list ? (y/n): n
MENU
1 - New
2 - Find
3 - List
4 - Exit
Enter option: 2
Find by id: 666666543
No patient found with ID equalled to 666666543.
Would you like to edit or delete a listed entry? (y/n): y
Enter index of entry: 3
1 - Edit
2 - Delete
Enter option: 1
Feedback
23/8/2025 21:23
REDMI NOTE 12


CMPE241-Term-Project (2).pdf
ad - The Technical Interview Platform
Sign Up Free
Login
Reset
2 - Delete
Enter option: 1
Invalid index.
MENU
1 - New
2 - Find
3 - List
4 - Exit
Enter option: 3
Index ID Name Surname Age Department Sugar Cholesterol Heart Disease Rate
0 00033998765 jo idil 023 kidneys 065 199 002%
1 00000326654 sara aeshan 115 heart 993 074 060%
Would you like to delete all the list ? (y/n): y
all entered list has been deleted
MENU
1 - New
2 - Find
3 - List
4 - Exit
Enter option: 3
no patients to display.
Would you like to delete all the list ? (y/n): n
MENU
1 - New
2 - Find
3 - List
4 - Exit
Enter option: 4
Exiting.
Feedback
23/8/2025 21:23
REDMI NOTE 12