Object Oriented Programming

CS3002

Disciplinary

Lab Management

Assignment 1

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Class Helpline (master class)

Class helpline is the master class which is used to display the information of fixed patients diverted to our lab with their contact details, also this class displays our lab information, here in this class we have 2 constructors which is used to display the expected output.

- **Expected input:** we will be taking string values as **yes, no** or **today** in the constructor with the help of **cout<<" ", cin>> functions.**
- **Expected output:** as soon as we enter some string values as mentioned above we will get the following results in the respective constructors.

Constructor1():
Output = no. of fixed patients and their contact details displayed.

Constructor2():

Output = Lab name, Lab location, Handling intensity, testing capacity (information will be according to severity of patients using if-else).

Class Patient_info (Sub class)

This is the sub class which is used to deliver the time slots to respective patients and is used to ensure the payment of the test done via registration also this class will deliver online results to respective patients in filtered batches of timings allotted, so for the above work we have made 3 methods to do the respective jobs.

- **Expected Input:** In the 1st method **timeslot ()** we will give input as **string** and **int** to give time slots by giving **contact, name, time slot**.

  2nd method **registration ()** here we will take strings such as **name, fathers name, address, payment, batch name.**

  3rd **method result ()** here we will take **result** as int input with provided **if – else condition**.

- **Expected Output:** for the 1st method the output will be the SMS (where we use **cout<<" "** to display **time slot** given to patient **(eg: 10:15 at freeganj lab).**

  2nd method, the output will be details of **registration** using the same **cout<<" ".**

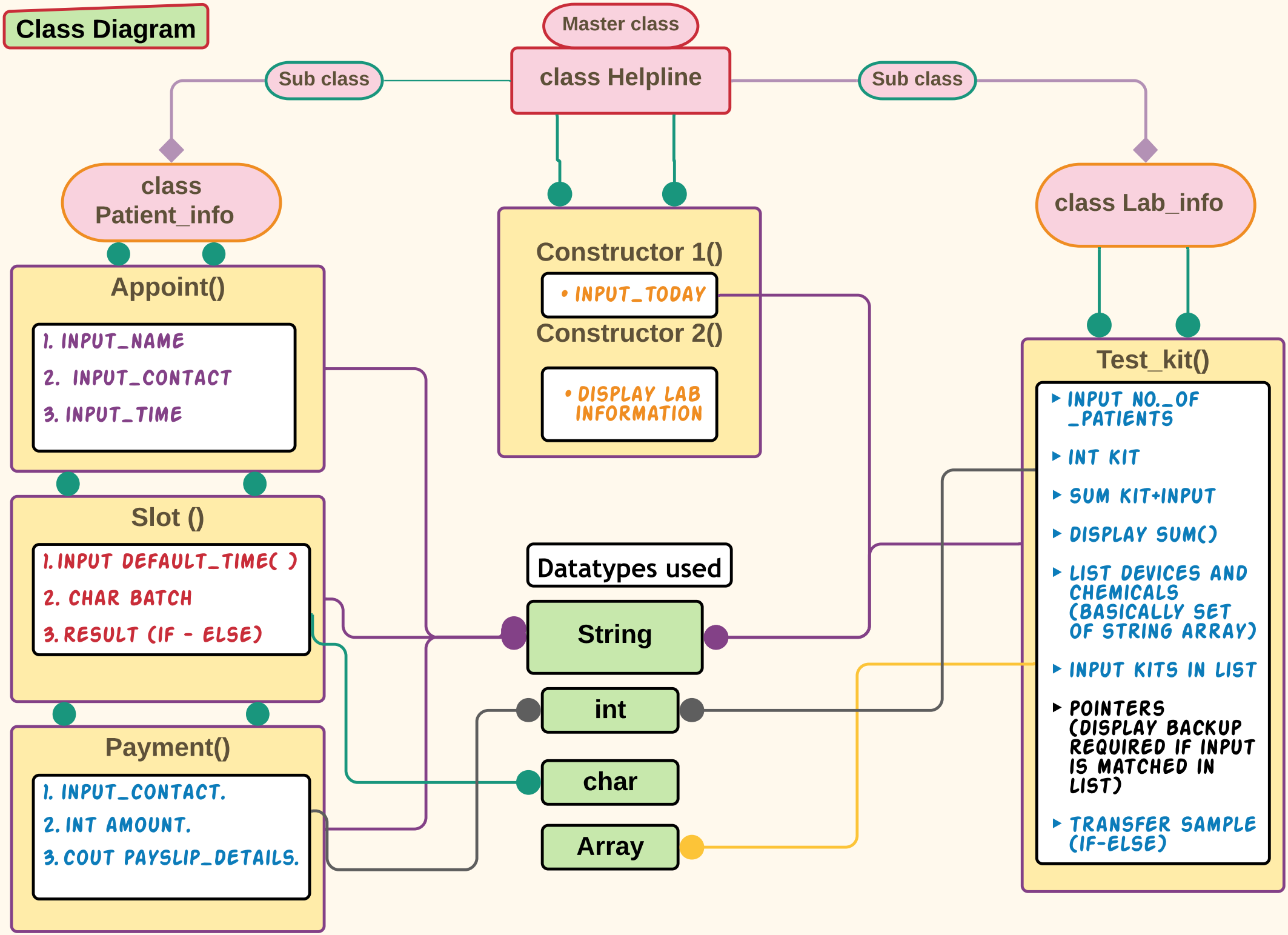
  3rd method output will be input conditional based if report is +ve then sended on **SMS** if -ve not sended or swapped using **pointers** if report is of severe patients to another lab, all are done using **cout<<" ", cin>>** functions.

Class lab_info (Sub class)

Basically this class contains all info regarding internal affairs of the lab (eg: contains no_of_kits available, device required, chemicals available, samples tested and record given to government to perform the above work we have 3 methods inside this class which do their respective functions.

- **Expected input:** In the first method **No_of_test()** we take an **int no.** using **cout<<" " and cin>>.**
  2nd method **Test_kit()** also takes input as **no.** but performs conditional display show using **if-else** based on a fixed no.
  3rd method **chemicals()** is a set of **array** contains some **chemicals** name and provided a input function which calls those chemical from that array with the typed index character.

- **Expected output:** In the 1st method displayed output will be **test kit no** and provided to govt.
  2nd method output will be based on a fixed number given initially if input exceeds fixed no. then we will ask backup kit from other lab.
  3rd method will display the chemicals name from input function from their index range of array.


Class Diagram
Master class
class Helpline
Sub class
Sub class
class Patient_info
class Lab_info
Constructor 1()
• INPUT_TODAY
Constructor 2()
• DISPLAY LAB INFORMATION
Appoint()
1. INPUT_NAME
2. INPUT_CONTACT
3. INPUT_TIME
Slot ()
1. INPUT DEFAULT_TIME( )
2. CHAR BATCH
3. RESULT (IF - ELSE)
Payment()
1. INPUT_CONTACT.
2. INT AMOUNT.
3. COUT PAYSLIP_DETAILS.
Datatypes used
String
int
char
Array
Test_kit()
▸ INPUT NO._OF _PATIENTS
▸ INT KIT
▸ SUM KIT+INPUT
▸ DISPLAY SUM()
▸ LIST DEVICES AND CHEMICALS (BASICALLY SET OF STRING ARRAY)
▸ INPUT KITS IN LIST
▸ POINTERS (DISPLAY BACKUP REQUIRED IF INPUT IS MATCHED IN LIST)
▸ TRANSFER SAMPLE (IF-ELSE)

Flow-Chart

Lab - Management

Start

Sub class

Master class

Helpline_team

lab_info

Sub class

Patient_info

Chemical()

Test_kit()

Nos_of_test()

Set of all chemicals

For i in range(set)

cout<<i[0];
cout<<i[1];
cout<<i[2];
cout<<i[3];
cout<<i[4];

Government

If Nos_of_test()
== Nos_of_kit()

YES

cout<<"No need for any extra kit";

NO

cout<<"contact other labs";

LabA

LabC

TimeSlots();

Morning

1. 9-10 am
2. 10-11 am
3. 11 -12 noon
4. 12 – 1 pm

Evening

1. 2 - 3 pm
2. 3 - 4 pm
3. 4 - 5 pm
4. 5 – 6 pm

Test()

Registration()

User Input

cin>>"FullName";

cin>>"FathersN";

cin>>"Address";

cin>>"PhoneN";

If patient_repo
== +1 (positive)

YES

Sms(); Payslips();
Medicines(); time()

NO

Else If
patient_repo
== 3(high) &
1(Low)

YES

Swapping
Patients with other Labs.
Using Pointers**

else

YES

Time();
cout<<"You don't have coronavirus";

If patient_symp
== High(3)

YES

cout<<"Location:"<<LabA;
cout<<"Name"<<Lname;

NO

else if patient_symp
== Medium(2)

YES

cout<<"Location:"<<LabB;
cout<<"Name"<<Lname;

NO

else if patient_symp
== Low(1)

YES

cout<<"Location:"<<LabC;
cout<<"Name"<<Lname;

NO

Else

YES

cout<<"patient is healthy";