Software Quality Engineering

Assignment # 1,2 & 3

Group Members:

BSE181045 - Minahil Babar BSE181021 - Sumrush Aslam

Github link: https://github.com/minahilx/SQE

Section #1

Oct 12, 2020

Submitted to: Mr. Samir Obaid

Table of Contents

CASE STUDY	3
FUNCTIONS:	4
BLACK BOX TESTING	5
1. Boundary Value Analysis Testing:	5
Function 1:Manage_Appointment (int noOfappointment)	5
Function 2: PayBill(Double amount)	5
Function 3: Sign-up (String name, String password, String contact_no)	6
2. Robust Boundary Value Analysis Testing:	9
Function 1: Manage_Appointment (int noOfappointment)	9
Function 2: PayBill(Double amount)	9
Function3: Sign-up (String name, String password, String contact_no)	10
3. Worst Case Boundary value Analysis Testing:	12
Function 1:Manage_Appointment (int noOfappointment)	13
Function 2:PayBill(Double amount)	13
Function3: Sign-up (String name, String password, String contact_no)	14
4. Robust Worst Case Testing	20
Function 1:Manage_Appointment (int noOfappointment)	21
Function 2:PayBill(Double amount)	21
Function 3:Sign-up (String name, String password, String contact_no)	22
5. Strong Robust Equivalence Class Partitioning:	42
Function 1:Manage_Appointment (int noOfappointment)	42
Function 2: PayBill(Double amount)	43
Function 3: Sign-up (String name, String password, String contact_no).	43
6. Cause Effect Graphing	45
1. Identify Causes and effects	45
2. Graphs:	47
3. Decision Table:	48
4. Identifying Test cases:	49
5 Test cases:	50

CASE STUDY

Hospital Management System

Taking care of our Health is the most prior thing in our lives and there is always in times of needs when our health is at risk and due to some reason we could not reach to clinics immediately and sometimes due to our hectic schedule we could not just go the clinic and waiting long queue just to take an appointment for the check up so we need some automated system which should be reliable, fast and accurate which should be there for us in times of needs

Hospital Management System is aimed to maintain the day-to-day state of admission/discharge of patients, a list of doctor's reports generation, etc.

This system will be designed to improve clinical workflow, and perform advanced appointment scheduling. This application will connect clinics and patient online through web based application. Now days no one has time to visit clinic and wait for appointment. This application will help for getting online appointment. Patient can get appointment through SMS or Internet.

Patient will request to make an appointment; receptionist will manage the appointment details. Doctors can make their schedule according to patient's appointments, which should be at least 3 and at most 10 in a day. Once patient's appointment gets confirmed then patient can see online how many people are waiting in queue for appointment and Receptionist saves appointment details. Doctor will upload all the patient medical history on portal. This information will be visible to the patient and the visiting Doctors only to maintain the privacy with help of their own personal login system which they have to provide their

name which should be less than or equal to 20 alphabet character and should be greater than or equal to 6 character, password which should contain 6 characters at least and at most 10 character's and contact number which contains less than or equal to 15 digit and greater than or equal to 7 digit. As patient and clinic will be connected online, if a patient gets transferred from one clinic to another clinic, visited clinics doctor can see medical history of that patient and personal information of patient using the portal. It will be a waiting room solution. Patient can pay the doctor's bill through online payment system, which will be starting, from PRs.300 to PRs. 3000 according to patient treatment. Once the payment has been made, a medical receipt is provided to the patient, which includes what services provided and their respective costs that have been paid for.

Importance of web-based application is increasing day by day, it is important to manage all the healthcare data online. Now everyone has Internet connection and it is easy to use web application. This application will reduce the work of patient as well as doctor. Doctor does not need to take patient's initial description such as weight, patient's blood group repeatedly, because all this information will be entered at the time of registration of patient on website. Doctor will automatically see patient's information. There is no more hardware required for patient and doctor. Efficient appointment schedules will reduce patient waiting time while keeping doctor's idle time as low as possible without adding extra resources. Efficient and effective management of healthcare is imperative due to the efficient appointment scheduling.

FUNCTIONS:

- 1. Manage_Appointment (int appointment)
- 2. PayBill(Double amount)
- 3. Sign-up(String name, String password, String contact_no)

BLACK BOX TESTING

1. Boundary Value Analysis Testing:

<u>Function 1:Manage_Appointment (int noOfappointment)</u>

• Constarint:

Appointment should be at least 3 and at most 10

• Boundary:

noOfappointment = 3 and 10

• **Test cases**: $4(n) + 1 \Rightarrow 4(1) + 1 = 5$

• Input values:

min = 3

min+1=4

normal = 7

max-1 = 9

max = 10

Case	noOfappointment	Expected output
1	3	Make Schedule
2	4	Make Schedule
3	7	Make Schedule
4	9	Make Schedule
5	10	Make Schedule

✓ => Valid input

Function 2:_PayBill(Double amount)

• Constraint:

Bill should be in range of PRs.300 to PRs. 3000

• Boundary:

amount = 300 and 3000

• **Test cases**: $4(n) + 1 \Rightarrow 4(1) + 1 = 5$

• Input values:

min = 300 min+1= 301 normal = 1800 max-1 = 2999 max = 3000

Case	amount	Expected output
1	300	Generate Medical Receipt
2	301	Generate Medical Receipt
3	1800	Generate Medical Receipt
4	2999	Generate Medical Receipt
5	3000	Generate Medical Receipt

✓ => Valid input

Function 3: Sign-up (String name, String password, String contact no)

• **Total Test cases**: $4n+1 \Rightarrow 4(3)+1 = 13$

• Constraint:

Name should be less than or equal to 20 alphabet character and should be greater than or equal to 6 character.

Password should contain 6 characters at least and at most 10 characters.

Contact_no should be less than or equal to 15 digit and greater than or equal to 7 digit.

Boundaries:

Name = 6 and 20 Password = 6 and 10 Contact_no = 7 and 15

• Input values:

For name

min = Newton

min+1= Thommas

normal = Mark Zukerburg

max-1 = Mahenoor Haider Ali

max = Aleaxander Hamillton

For Password

min = 123abc

min+1=567mnop

normal = gho 34566

max-1 = code 22246

max = pinx 123456

For Contact_no

min = 1234567

min+1=12345678

normal = 12345678910

max-1 = 12345678911234

max = 123456789112345

Case	name	password	contact_no	Expected output
1	Mark Zukerburg	gho34566	1234567	Login
2	Mark Zukerburg	gho34566	12345678	Login
3	Mark Zukerburg	gho34566	12345678910	Login
4	Mark Zukerburg	gho34566	12345678911234	Login
5	Mark Zukerburg	gho34566	123456789112345	Login
6	Newton	gho34566	12345678910	Login
7	Thommas	gho34566	12345678910	Login

8	Mahenoor Haider Ali	gho34566	12345678910	Login
9	Aleaxander Hamillton	gho34566	12345678910	Login
10	Mark Zukerburg	123abc	12345678910	Login
11	Mark Zukerburg	567mnop	12345678910	Login
12	Mark Zukerburg	code22246	12345678910	Login
13	Mark Zukerburg	pinx123456	12345678910	Login

2. Robust Boundary Value Analysis Testing:

Function 1: Manage_Appointment (int noOfappointment)

Constarint:

Appointment should be at least 3 and at most 10

• Boundary:

noOfappointment = 3 and 10

• **Test cases**: $6(n) + 1 \Rightarrow 6(1) + 1 = 7$

• Input values:

Min-1=2

Min = 3

Min+1=4

Normal = 7

Max-1 = 9

Max = 10

Max+1=11

Case	noOfappointment	Expected output
1	2	Invalid
2	3	Make Schedule
3	4	Make Schedule
4	7	Make Schedule
5	9	Make Schedule
6	10	Make Schedule
7	11	Invalid

 \checkmark => Valid input

x => Invalid input

Function 2: PayBill(Double amount)

• Constraint:

Bill should be in range of PRs. 300 to PRs. 3000

• Boundary:

amount = 300 and 3000

- **Test cases**: $6(n) + 1 \Rightarrow 6(1) + 1 = 7$
- Input values:

Min-1=299

Min = 300

Min+1=301

Normal = 1800

Max-1 = 2999

Max = 3000

Max+1=3001

Case	amount	Expected output
1	299	Invalid Data
2	300	Generate Medical Receipt
3	301	Generate Medical Receipt
4	1800	Generate Medical Receipt
5	2999	Generate Medical Receipt
6	3000	Generate Medical Receipt
7	3001	Invalid Data

- ✓ => Valid input
- **x** => Invalid input
 - > Function3: Sign-up (String name, String password, String contact_no)
 - **Total Test cases**: $6n+1 \Rightarrow 6(3)+1 = 19$
 - Constraint:

Name should be less than or equal to 20 alphabet character and should be greater than or equal to 6 character.

Password should contain 6 characters at least and at most 10 characters.

Contact_no should be less than or equal to 15 digit and greater than or equal to 7 digit.

• Boundaries:

Name = 6 and 20 Password = 6 and 10 Contact no = 7 and 15

• Input values:

For name

Min-1= Jonas Min = Newton Min+1= Thommas Normal = Mark Zukerburg Max-1 = Mahenoor Haider Ali Max = Aleaxander Hamillton Max+1= Hubert Blaine Grayson

For Password

min-1= 123ab min = 123abc min+1= 567mnop normal = gho34566 max-1 = code22246 max = pinx123456 max+1= putx4445556

For Contact_no

min-1= 123456 min = 1234567 min+1= 12345678 normal = 12345678910 max-1 = 12345678911234 max = 123456789112345 max+1=224466889977551

Case	name	password	Contact_no	Expexted output
1	Mark Zukerburg	gho34566	123456	Invalid Data
2	Mark Zukerburg	gho34566	1234567	Login
3	Mark Zukerburg	gho34566	12345678	Login
4	Mark Zukerburg	gho34566	12345678910	Login
5	Mark Zukerburg	gho34566	12345678911234	Login
6	Mark Zukerburg	gho34566	123456789112345	Login
7	Mark Zukerburg	gho34566	224466889977551	Invalid Data
8	Mark Zukerburg	123ab	12345678910	Invalid Data
9	Mark Zukerburg	123abc	12345678910	Login
10	Mark Zukerburg	567mnop	12345678910	Login
11	Mark Zukerburg	code22246	12345678910	Login
12	Mark Zukerburg	pinx123456	12345678910	Login
13	Mark Zukerburg	putx4445556	12345678910	Invalid Data
14	Jonas	gho34566	12345678910	Invalid Data
15	Newton	gho34566	12345678910	Login
16	Thommas	gho34566	12345678910	Login
17	Mahenoor Haider Ali	gho34566	12345678910	Login
18	Aleaxander Hamillton	gho34566	12345678910	Login
19	Hubert Blaine Grayson	gho34566	12345678910	Invalid Data

3. Worst Case Boundary value Analysis Testing:

> Function 1:Manage_Appointment (int noOfappointment)

• Constarint:

Appointment should be at least 3 and at most 10

• Boundary:

noOfappointment = 3 and 10

• **Test cases**: $5^n = 5^1 = 5$

• Input values:

min = 3 min+1= 4 normal = 7 max-1 = 9 max = 10

Case	noOfappointment	Expected output
1	3	Make Schedule
2	4	Make Schedule
3	7	Make Schedule
4	9	Make Schedule
5	10	Make Schedule

✓ => Valid input

> Function 2:PayBill(Double amount)

• Constraint:

Bill should be in range of PRs.300 to PRs. 3000

• Boundary:

Amount = 300 and 3000

• **Test cases**: $5^n = 5^1 = 5$

• Input values:

min = 300 min+1= 301 normal = 1800 max-1 = 2999 max = 3000

Case	amount	Expected output
1	300	Generate Medical Receipt
2	301	Generate Medical Receipt
3	1800	Generate Medical Receipt
4	2999	Generate Medical Receipt
5	3000	Generate Medical Receipt

 \checkmark => Valid input

- > Function3: Sign-up (String name, String password, String contact_no)
- **Test cases**: $5^n => 5^3 => 125$

Constraint:

Name should be less than or equal to 20 alphabet character and should be greater than or equal to 6 character.

Password should contain 6 characters at least and at most 10 characters.

Contact_no should be less than or equal to 15 digit and greater than or equal to 7 digit.

Boundaries:

Name = 6 and 20 Password = 6 and 10 Contact_no = 7 and 15

Input values =

For name

min = Newton min+1= Thommas normal = Mark Zukerburg max-1 = Mahenoor Haider Ali max = Aleaxander Hamillton

For Password

min = 123abc min+1= 567mnop normal = gho34566 max-1 = code22246 max = pinx123456

For Contact_no

min = 1234567 min+1= 12345678 normal = 12345678910 max-1 = 12345678911234 max = 123456789112345

Case	name	password	contact_no	Expected output
1.	Newton	123abc	1234567	Login
2.	Newton	123abc	12345678	Login
3.	Newton	123abc	12345678910	Login
4.	Newton	123abc	12345678911234	Login
5.	Newton	123abc	123456789112345	Login
6.	Newton	567mnop	1234567	Login
7.	Newton	567mnop	12345678	Login
8.	Newton	567mnop	12345678910	Login
9.	Newton	567mnop	12345678911234	Login
10.	Newton	567mnop	123456789112345	Login
11.	Newton	gho34566	1234567	Login
12.	Newton	gho34566	12345678	Login
13.	Newton	gho34566	12345678910	Login
14.	Newton	gho34566	12345678911234	Login
15.	Newton	gho34566	123456789112345	Login
16.	Newton	code22246	1234567	Login
17.	Newton	code22246	12345678	Login
18.	Newton	code22246	12345678910	Login
19.	Newton	code22246	12345678911234	Login
20.	Newton	code22246	123456789112345	Login
21.	Newton	pinx123456	1234567	Login
22.	Newton	pinx123456	12345678	Login
23.	Newton	pinx123456	12345678910	Login
24.	Newton	pinx123456	12345678911234	Login
25.	Newton	pinx123456	123456789112345	Login
26.	Thommas	123abc	1234567	Login
27.	Thommas	123abc	12345678	Login
28.	Thommas	123abc	12345678910	Login
29.	Thommas	123abc	12345678911234	Login
30.	Thommas	123abc	123456789112345	Login
31.	Thommas	567mnop	1234567	Login
32.	Thommas	567mnop	12345678	Login
33.	Thommas	567mnop	12345678910	Login
34.	Thommas	567mnop	12345678911234	Login
35.	Thommas	567mnop	123456789112345	Login
36.	Thommas	gho34566	1234567	Login
37.	Thommas	gho34566	12345678	Login
38.	Thommas	gho34566	12345678910	Login
39.	Thommas	gho34566	12345678911234	Login
40.	Thommas	gho34566	123456789112345	Login
41.	Thommas	code22246	1234567	Login
42.	Thommas	code22246	12345678	Login

43.	Thommas	code22246	12345678910	Login
44.	Thommas	code22246	12345678911234	Login
45.	Thommas	code22246	123456789112345	Login
46.	Thommas	pinx123456	1234567	Login
47.	Thommas	pinx123456	12345678	Login
48.	Thommas	pinx123456	12345678910	Login
49.	Thommas	pinx123456	12345678911234	Login
50.	Thommas	pinx123456	123456789112345	Login
51.	Mark	123abc	1234567	Login
	Zukerburg			208
52.	Mark	123abc	12345678	Login
	Zukerburg			208
53.	Mark	123abc	12345678910	Login
	Zukerburg			208
54.	Mark	123abc	12345678911234	Login
	Zukerburg			- G
55.	Mark	123abc	123456789112345	Login
	Zukerburg			Ö
56.	Mark	567mnop	1234567	Login
	Zukerburg			O
57.	Mark	567mnop	12345678	Login
	Zukerburg			G
58.	Mark	567mnop	12345678910	Login
	Zukerburg			G
59.	Mark	567mnop	12345678911234	Login
	Zukerburg			
60.	Mark	567mnop	123456789112345	Login
	Zukerburg			
61.	Mark	gho34566	1234567	Login
	Zukerburg			
62.	Mark	gho34566	12345678	Login
	Zukerburg			
63.	Mark	gho34566	12345678910	Login
	Zukerburg			
64.	Mark	gho34566	12345678911234	Login
	Zukerburg			
65.	Mark	gho34566	123456789112345	Login
	Zukerburg			
66.	Mark	code22246	1234567	Login
	Zukerburg			
67.	Mark	code22246	12345678	Login
	Zukerburg			
68.	Mark	code22246	12345678910	Login
_	Zukerburg			
69.	Mark	code22246	12345678911234	Login

de22246 x123456 x123456 x123456 x123456 x123456 23abc 23abc 23abc 23abc 23abc	123456789112345 12345678 12345678910 12345678911234 123456789112345 12345678 12345678910 12345678911234 12345678911234 123456789112345 123456789112345	Login
x123456 x123456 x123456 x123456 23abc 23abc 23abc 23abc 23abc	12345678 12345678910 12345678911234 123456789112345 12345678 12345678910 12345678911234 123456789112345 123456789112345	Login
x123456 x123456 x123456 x123456 23abc 23abc 23abc 23abc 23abc	12345678 12345678910 12345678911234 123456789112345 12345678 12345678910 12345678911234 123456789112345 123456789112345	Login
x123456 x123456 x123456 x123456 23abc 23abc 23abc 23abc 23abc	12345678 12345678910 12345678911234 123456789112345 12345678 12345678910 12345678911234 123456789112345 123456789112345	Login
x123456 x123456 x123456 23abc 23abc 23abc 23abc 23abc	12345678910 12345678911234 123456789112345 12345678 12345678910 12345678911234 123456789112345 1234567	Login
x123456 x123456 x123456 23abc 23abc 23abc 23abc 23abc	12345678910 12345678911234 123456789112345 12345678 12345678910 12345678911234 123456789112345 1234567	Login
x123456 x123456 23abc 23abc 23abc 23abc 23abc 57mnop	12345678911234 123456789112345 1234567 12345678 12345678910 12345678911234 123456789112345 1234567	Login Login Login Login Login Login Login Login
x123456 x123456 23abc 23abc 23abc 23abc 23abc 57mnop	12345678911234 123456789112345 1234567 12345678 12345678910 12345678911234 123456789112345 1234567	Login Login Login Login Login Login Login Login
23abc 23abc 23abc 23abc 23abc 23abc 257mnop	123456789112345 1234567 12345678 12345678910 12345678911234 123456789112345 1234567	Login Login Login Login Login Login Login
23abc 23abc 23abc 23abc 23abc 23abc 257mnop	123456789112345 1234567 12345678 12345678910 12345678911234 123456789112345 1234567	Login Login Login Login Login Login Login
23abc 23abc 23abc 23abc 23abc 57mnop	1234567 12345678 12345678910 12345678911234 123456789112345 1234567	Login Login Login Login Login
23abc 23abc 23abc 23abc 23abc 57mnop	1234567 12345678 12345678910 12345678911234 123456789112345 1234567	Login Login Login Login Login
23abc 23abc 23abc 23abc 23abc 67mnop	12345678 12345678910 12345678911234 123456789112345 1234567	Login Login Login Login
23abc 23abc 23abc 23abc 23abc 67mnop	12345678 12345678910 12345678911234 123456789112345 1234567	Login Login Login Login
23abc 23abc 23abc 27mnop	12345678910 12345678911234 123456789112345 1234567	Login Login Login
23abc 23abc 23abc 27mnop	12345678910 12345678911234 123456789112345 1234567	Login Login Login
23abc 23abc 57mnop	12345678911234 123456789112345 1234567	Login Login
23abc 23abc 57mnop	12345678911234 123456789112345 1234567	Login Login
23abc 57mnop	123456789112345 1234567	Login Login
23abc 57mnop	123456789112345 1234567	Login
23abc 57mnop	123456789112345 1234567	Login
67mnop	1234567	
67mnop	1234567	
		Login
		подп
57mnop	10245679	
)/IIIIOp		Login
-	12343076	Logiii
7mnon	12345678910	Lagin
57mnop	12343076910	Login
7	10245670011024	т .
57mnop	12345678911234	Login
		_
57mnop	123456789112345	Login
034566	1234567	Login
034566	12345678	Login
o34566	12345678910	Login
		S
034566	12345678911234	Login
-		0
	10015/500110015	Login
034566	1 123456789112345	105111
034566	123456789112345	
		Login
de22246	123456789112345	Login
	034566	12345678 1034566 12345678910

Haider Ali			
Mahenoor	code22246	12345678910	Login
Haider Ali			8
	code22246	12345678911234	Login
Haider Ali			208
	code22246	123456789112345	Login
			208.11
	pinx123456	1234567	Login
	P		208.11
	pinx 123456	12345678	Login
	P		208.11
	pinx 123456	12345678910	Login
	P1111120 10 0	120 .0070710	208111
	pinx 123456	12345678911234	Login
	PIII.125 15 0	125 15 0 7 0 7 11 25 1	208111
	pinx 123456	123456789112345	Login
	pmx123 130	123 1307071123 13	подти
	123abc	1234567	Login
	123460	123 1307	повін
	123abc	12345678	Login
	123460	123 13070	nogin
	123abc	12345678910	Login
	123460	123 13070710	повін
	123abc	12345678911234	Login
	123460	123 130 70 71123 1	повін
	123abc	123456789112345	Login
	123460	123 1307071123 13	повін
	567mnon	1234567	Login
	Jornmop	123 1307	nogin
	567mnon	12345678	Login
	So / milop	123 12070	подти
	567mnon	12345678910	Login
	So / milop	123 13 07 07 10	208111
	567mnop	12345678911234	Login
			208.11
	567mnop	123456789112345	Login
	F 0 7 P		208
	gho34566	1234567	Login
	6 12 12 2		
Aleaxander	gho34566	12345678	Login
Hamillton			G
	gho34566	12345678910	Login
	0 11 12 12		
Aleaxander	gho34566	12345678911234	Login
	5		~~~
	gho34566	123456789112345	Login
	Mahenoor Haider Ali Aleaxander Hamillton	Mahenoor Haider Ali Aleaxander Hamillton	Mahenoor Haider Ali code22246 12345678910 Mahenoor Haider Ali code22246 12345678911234 Mahenoor Haider Ali pinx123456 123456789112345 Mahenoor Haider Ali pinx123456 12345678 Mahenoor Haider Ali pinx123456 12345678910 Mahenoor Haider Ali pinx123456 12345678911234 Mahenoor Haider Ali pinx123456 123456789112345 Mahenoor Haider Ali pinx123456 123456789112345 Aleaxander Hamillton 123abc 12345678 Aleaxander Hamillton 123abc 12345678910 Aleaxander Hamillton 123abc 123456789112345 Aleaxander Hamillton 123abc 123456789112345 Aleaxander Hamillton 567mnop 12345678 Aleaxander Hamillton 567mnop 123456789112345 Aleaxander Hamillton 567mnop 123456789112345 Aleaxander Hamillton 567mnop 123456789112345 Aleaxander Hamillton 567mnop 123456789112345 Aleaxander Hamillton 345666 123456789112345

	Hamillton			
115.	Aleaxander	code22246	1234567	Login
	Hamillton			
116.	Aleaxander	code22246	12345678	Login
	Hamillton			
117.	Aleaxander	code22246	12345678910	Login
	Hamillton			
118.	Aleaxander	code22246	12345678911234	Login
	Hamillton			
119.	Aleaxander	code22246	123456789112345	Login
	Hamillton			
120.	Aleaxander	pinx123456	1234567	Login
	Hamillton			
	Aleaxander	pinx123456	12345678	Login
	Hamillton			
121.	Aleaxander	pinx123456	12345678910	Login
	Hamillton			
122.	Aleaxander	pinx123456	12345678911234	Login
	Hamillton			_
123.	Aleaxander	pinx123456	123456789112345	Login
	Hamillton			
124.	Aleaxander	123abc	1234567	Login
	Hamillton			
125.	Aleaxander	123abc	12345678	Login
	Hamillton			-

4. Robust Worst Case Testing

> Function 1:Manage_Appointment (int noOfappointment)

• Constarint:

Appointment should be at least 3 and at most 10

• Boundary: noOfappointmen => 3 and 10

• **Test cases**: $7^n = 7^1 = 7$

• Input value:

Min-1=2

Min = 3

Min+1=4

Normal = 7

Max-1=9

Max = 10

Max+1=11

Case	noOfappointment	Expected output
1	2	Invalid
2	3	Make Schedule
3	4	Make Schedule
4	7	Make Schedule
5	9	Make Schedule
6	10	Make Schedule
7	11	Invalid

✓ => Valid input

× => Invalid input

Function 2:PayBill(Double amount)

• Constraint:

Bill should be in range of PRs.300 to PRs. 3000

• Boundary:

Amount => 300 and 3000

• **Test cases**: $7^n = 7^1 = 7$

• Input values:

Min-1=299

Min = 300

Min+1=301

Normal = 1800

Max-1 = 2999

Max = 3000

Max+1=3001

Case	amount	Expected output
1	299	Invalid Data
2	300	Generate Medical Receipt
3	301	Generate Medical Receipt
4	1800	Generate Medical Receipt
5	2999	Generate Medical Receipt
6	3000	Generate Medical Receipt
7	3001	Invalid Data

✓ => Valid input

 \star => Invalid input

> Function 3:Sign-up (String name, String password, String contact_no)

• **Test cases**: $7^n = 7^3 = 343$

Constraint:

Name should be less than or equal to 20 alphabet character and should be greater than or equal to 6 character.

Password should contain 6 characters at least and at most 10 characters.

Contact_no should be less than or equal to 15 digit and greater than or equal to 7 digit.

Boundaries:

name = 6 and 20 password = 6 and 10 contact_no = 7 and 15

• Input values:

For name

Min-1= Jonas Min = Newton Min+1= Thommas Normal = Mark Zukerburg Max-1 = Mahenoor Haider Ali Max = Aleaxander Hamillton Max+1= Hubert Blaine Grayson

For Password

min-1= 123ab min = 123abc min+1= 567mnop normal = gho34566 max-1 = code22246 max = pinx123456 max+1= putx4445556

For Contact_no

min-1= 123456 min = 1234567 min+1= 12345678 normal = 12345678910 max-1 = 12345678911234

Case	Name	Password	Contact_no	Expected Output
1.	Jonas	123ab	123456	Invalid
				Data
2.	Jonas	123ab	1234567	Invalid
				Data
3.	Jonas	123ab	12345678	Invalid
				Data
4.	Jonas	123ab	12345678910	Invalid
				Data
5.	Jonas	123ab	12345678911234	Invalid
				Data
6.	Jonas	123ab	123456789112345	Invalid
				Data
7.	Jonas	123ab	224466889977551	Invalid
				Data
8.	Jonas	123abc	123456	Invalid
				Data
9.	Jonas	123abc	1234567	Invalid
				Data
10.	Jonas	123abc	12345678	Invalid
				Data
11.	Jonas	123abc	12345678910	Invalid
				Data
12.	Jonas	123abc	12345678911234	Invalid
				Data
13.	Jonas	123abc	123456789112345	Invalid
				Data
14.	Jonas	123abc	224466889977551	Invalid
				Data
15.	Jonas	567mnop	123456	Invalid
				Data
16.	Jonas	567mnop	1234567	Invalid

				Data
17.	Jonas	567mnop	12345678	Invalid
				Data
18.	Jonas	567mnop	12345678910	Invalid
		1		Data
19.	Jonas	567mnop	12345678911234	Invalid
		1		Data
20.	Jonas	567mnop	123456789112345	Invalid
				Data
21.	Jonas	567mnop	224466889977551	Invalid
				Data
22.	Jonas	gho34566	123456	Invalid
				Data
23.	Jonas	gho34566	1234567	Invalid
				Data
24.	Jonas	gho34566	12345678	Invalid
				Data
25.	Jonas	gho34566	12345678910	Invalid
				Data
26.	Jonas	gho34566	12345678911234	Invalid
				Data
27.	Jonas	gho34566	123456789112345	Invalid
				Data
28.	Jonas	gho34566	224466889977551	Invalid
				Data
29.	Jonas	code22246	123456	Invalid
				Data
30.	Jonas	code22246	1234567	Invalid
				Data
31.	Jonas	code22246	12345678	Invalid
				Data
32.	Jonas	code22246	12345678910	Invalid
				Data
33.	Jonas	code22246	12345678911234	Invalid
				Data
34.	Jonas	code22246	123456789112345	Invalid
				Data
35.	Jonas	code22246	224466889977551	Invalid

				Data
36.	Jonas	pinx123456	123456	Invalid
20.	Johns	piii:123 13 0	123130	Data
37.	Jonas	pinx123456	1234567	Invalid
	bollas	piii:123 13 0	123 1307	Data
38.	Jonas	pinx123456	12345678	Invalid
	0 01111	P20 10 0	120.0070	Data
39.	Jonas	pinx123456	12345678910	Invalid
				Data
40.	Jonas	pinx123456	12345678911234	Invalid
				Data
41.	Jonas	pinx123456	123456789112345	Invalid
				Data
42.	Jonas	pinx123456	224466889977551	Invalid
				Data
43.	Jonas	putx4445556	123456	Invalid
				Data
44.	Jonas	putx4445556	1234567	Invalid
				Data
45.	Jonas	putx4445556	12345678	Invalid
				Data
46.	Jonas	putx4445556	12345678910	Invalid
		111777	10017770011001	Data
47.	Jonas	putx4445556	12345678911234	Invalid
40	T		100456500110045	Data
48.	Jonas	putx4445556	123456789112345	Invalid
40	T	4 4445556	22446600077551	Data
49.	Jonas	putx4445556	224466889977551	Invalid
50	NIt	122-1	122456	Data
50.	Newton	123ab	123456	Invalid
51.	Newton	123ab	1234567	Data Invalid
J1.	INCWIOII	143aU	1434307	Data
52.	Newton	123ab	12345678	Invalid
J4.	INCWIOII	143au	12373070	Data
53.	Newton	123ab	12345678910	Invalid
		12300	123 130 100 10	Data
54.	Newton	123ab	12345678911234	Invalid
	1 (0), (011	12000	120 100,0011201	myana

				Data
55.	Newton	123ab	123456789112345	Invalid
	1 te wton	12300	123 130 10 11 123 13	Data
56.	Newton	123ab	224466889977551	Invalid
30.	1 te wton	12300	22110000))11331	Data
57.	Newton	123abc	123456	Invalid
		123430	123130	Data
58.	Newton	123abc	1234567	Login
59.	Newton	123abc	12345678	Login
60.	Newton	123abc	12345678910	Login
61.	Newton	123abc	12345678911234	Login
62.	Newton	123abc	123456789112345	Login
63.	Newton	123abc	224466889977551	Login
64.	Newton	567mnop	123456	Invalid
	1 te wton	Зотимор	123130	Data
65.	Newton	567mnop	1234567	Login
66.	Newton	567mnop	12345678	Login
67.	Newton	567mnop	12345678910	Login
68.	Newton	567mnop	12345678911234	Login
69.	Newton	567mnop	123456789112345	Login
70.	Newton	567mnop	224466889977551	Login
71.	Newton	gho34566	123456	Invalid
, 1,		grad id a a		Data
72.	Newton	gho34566	1234567	Login
73.	Newton	gho34566	12345678	Login
		8		208
74.	Newton	gho34566	12345678910	Login
75.	Newton	gho34566	12345678911234	Login
76.	Newton	gho34566	123456789112345	Login
77.	Newton	gho34566	224466889977551	Login
78.	Newton	code22246	123456	Invalid
				Data
79.	Newton	code22246	1234567	Login
80.	Newton	code22246	12345678	Login
81.	Newton	code22246	12345678910	Login
82.	Newton	code22246	12345678911234	Login
83.	Newton	code22246	123456789112345	Login

84.	Newton	code22246	224466889977551	Login
85.	Newton	pinx123456	123456	Invalid
65.	Newton	piiix123430	123430	Data
86.	Newton	pinx123456	1234567	
87.	Newton	pinx123456	12345678	Login
		-		Login
88.	Newton	pinx123456	12345678910	Login
89.	Newton	pinx123456	12345678911234	Login
90.	Newton	pinx123456	123456789112345	Login
91.	Newton	pinx123456	224466889977551	Login
92.	Newton	putx4445556	123456	Invalid
				Data
93.	Newton	putx4445556	1234567	Invalid
				Data
94.	Newton	putx4445556	12345678	Invalid
				Data
95.	Newton	putx4445556	12345678910	Invalid
				Data
96.	Newton	putx4445556	12345678911234	Invalid
				Data
97.	Newton	putx4445556	123456789112345	Invalid
				Data
98.	Newton	putx4445556	224466889977551	Invalid
				Data
99.	Thommas	123ab	123456	Invalid
				Data
100.	Thommas	123ab	1234567	Invalid
				Data
101.	Thommas	123ab	12345678	Invalid
				Data
102.	Thommas	123ab	12345678910	Invalid
				Data
103.	Thommas	123ab	12345678911234	Invalid
				Data
104.	Thommas	123ab	123456789112345	Invalid
				Data
105.	Thommas	123ab	224466889977551	Invalid
_ 50 .				Data
106.	Thommas	123abc	123456	Invalid
100.		12000	120100	mvana

				Data
107.	Thommas	123abc	1234567	Login
108.	Thommas	123abc	12345678	Login
109.	Thommas	123abc	12345678910	Login
110.	Thommas	123abc	12345678911234	Login
111.	Thommas	123abc	123456789112345	Login
112.	Thommas	123abc	224466889977551	Login
113.	Thommas	567mnop	123456	Invalid
				Data
114.	Thommas	567mnop	1234567	Login
115.	Thommas	567mnop	12345678	Login
116.	Thommas	567mnop	12345678910	Login
117.	Thommas	567mnop	12345678911234	Login
118.	Thommas	567mnop	123456789112345	Login
119.	Thommas	567mnop	224466889977551	Login
120.	Thommas	gho34566	123456	Invalid
				Data
121.	Thommas	gho34566	1234567	Login
122.	Thommas	gho34566	12345678	Login
123.	Thommas	gho34566	12345678910	Login
124.	Thommas	gho34566	12345678911234	Login
125.	Thommas	gho34566	123456789112345	Login
126.	Thommas	gho34566	224466889977551	Login
127.	Thommas	code22246	123456	Invalid
				Data
128.	Thommas	code22246	1234567	Login
129.	Thommas	code22246	12345678	Login
130.	Thommas	code22246	12345678910	Login
131.	Thommas	code22246	12345678911234	Login
132.	Thommas	code22246	123456789112345	Login
133.	Thommas	code22246	224466889977551	Login
134.	Thommas	pinx123456	123456	Invalid
				Data
135.	Thommas	pinx123456	1234567	Login
136.	Thommas	pinx123456	12345678	Login
137.	Thommas	pinx123456	12345678910	Login
138.	Thommas	pinx123456	12345678911234	Login
139.	Thommas	pinx123456	123456789112345	Login

140.	Thommas	pinx123456	224466889977551	Login
141.	Thommas	putx4445556	123456	Invalid
1111		parimers	120100	Data
142.	Thommas	putx4445556	1234567	Invalid
		P		Data
143.	Thommas	putx4445556	12345678	Invalid
				Data
144.	Thommas	putx4445556	12345678910	Invalid
				Data
145.	Thommas	putx4445556	12345678911234	Invalid
				Data
146.	Thommas	putx4445556	123456789112345	Invalid
				Data
147.	Thommas	putx4445556	224466889977551	Invalid
				Data
148.	Mark	123ab	123456	Invalid
	Zukerburg			Data
149.	Mark	123ab	1234567	Invalid
	Zukerburg			Data
150.	Mark	123ab	12345678	Invalid
	Zukerburg			Data
151.	Mark	123ab	12345678910	Invalid
	Zukerburg			Data
152.	Mark	123ab	12345678911234	Invalid
	Zukerburg			Data
153.	Mark	123ab	123456789112345	Invalid
	Zukerburg			Data
154.	Mark	123ab	224466889977551	Invalid
	Zukerburg			Data
155.	Mark	123abc	123456	Invalid
	Zukerburg			Data
156.	Mark	123abc	1234567	Login
	Zukerburg			
157.	Mark	123abc	12345678	Login
	Zukerburg			
158.	Mark	123abc	12345678910	Login
	Zukerburg			_
159.	Mark	123abc	12345678911234	Login

	Zukerburg			
160.	Mark	123abc	123456789112345	Login
	Zukerburg			
161.	Mark	123abc	224466889977551	Login
	Zukerburg			
162.	Mark	567mnop	123456	Invalid
	Zukerburg			Data
163.	Mark	567mnop	1234567	Login
	Zukerburg			
164.	Mark	567mnop	12345678	Login
	Zukerburg	1		
165.	Mark	567mnop	12345678910	Login
	Zukerburg			
166.	Mark	567mnop	12345678911234	Login
	Zukerburg			
167.	Mark	567mnop	123456789112345	Login
	Zukerburg			_
168.	Mark	567mnop	224466889977551	Login
	Zukerburg			
169.	Mark	gho34566	123456	Invalid
	Zukerburg			Data
170.	Mark	gho34566	1234567	Login
	Zukerburg			
171.	Mark	gho34566	12345678	Login
	Zukerburg			
172.	Mark	gho34566	12345678910	Login
	Zukerburg			
173.	Mark	gho34566	12345678911234	Login
	Zukerburg			
174.	Mark	gho34566	123456789112345	Login
	Zukerburg			
175.	Mark	gho34566	224466889977551	Login
	Zukerburg			
176.	Mark	code22246	123456	Invalid
	Zukerburg			Data
177.	Mark	code22246	1234567	Login
	Zukerburg			
178.	Mark	code22246	12345678	Login
	Zukerburg			

179.	Mark Zukerburg	code22246	12345678910	Login
180.	Mark Zukerburg	code22246	12345678911234	Login
181.	Mark Zukerburg	code22246	123456789112345	Login
182.	Mark Zukerburg	code22246	224466889977551	Login
183.	Mark Zukerburg	pinx123456	123456	Invalid Data
184.	Mark Zukerburg	pinx123456	1234567	Login
185.	Mark Zukerburg	pinx123456	12345678	Login
186.	Mark Zukerburg	pinx123456	12345678910	Login
187.	Mark Zukerburg	pinx123456	12345678911234	Login
188.	Mark Zukerburg	pinx123456	123456789112345	Login
189.	Mark Zukerburg	pinx123456	224466889977551	Login
190.	Mark Zukerburg	putx4445556	123456	Invalid Data
191.	Mark Zukerburg	putx4445556	1234567	Invalid Data
192.	Mark Zukerburg	putx4445556	12345678	Invalid Data
193.	Mark Zukerburg	putx4445556	12345678910	Invalid Data
194.	Mark Zukerburg	putx4445556	12345678911234	Invalid Data
195.	Mark Zukerburg	putx4445556	123456789112345	Invalid Data
196.	Mark Zukerburg	putx4445556	224466889977551	Invalid Data
197.	Mahenoor Haider Ali	123ab	123456	Invalid Data
198.	Mahenoor	123ab	1234567	Invalid

	Haider Ali			Data
199.	Mahenoor	123ab	12345678	Invalid
199.	Haider Ali	12340	12343076	Data
200		122 ala	12245679010	
200.	Mahenoor	123ab	12345678910	Invalid
201	Haider Ali	100.1	10017/70011001	Data
201.	Mahenoor	123ab	12345678911234	Invalid
	Haider Ali			Data
202.	Mahenoor	123ab	123456789112345	Invalid
	Haider Ali			Data
203.	Mahenoor	123ab	224466889977551	Invalid
	Haider Ali			Data
204.	Mahenoor	123abc	123456	Invalid
	Haider Ali			Data
205.	Mahenoor	123abc	1234567	Login
	Haider Ali			
206.	Mahenoor	123abc	12345678	Login
	Haider Ali			
207.	Mahenoor	123abc	12345678910	Login
	Haider Ali			J
208.	Mahenoor	123abc	12345678911234	Login
	Haider Ali			- 8
209.	Mahenoor	123abc	123456789112345	Login
	Haider Ali			S
210.	Mahenoor	123abc	224466889977551	Login
	Haider Ali			
211.	Mahenoor	567mnop	123456	Invalid
	Haider Ali	1		Data
212.	Mahenoor	567mnop	1234567	Login
	Haider Ali	F		0
213.	Mahenoor	567mnop	12345678	Login
	Haider Ali	P		
214.	Mahenoor	567mnop	12345678910	Login
	Haider Ali	P		
215.	Mahenoor	567mnop	12345678911234	Login
	Haider Ali	P		
216.	Mahenoor	567mnop	123456789112345	Login
	Haider Ali	Cormiop	120 100,00112010	208
217.	Mahenoor	567mnop	224466889977551	Login
217.	Haider Ali	Commop	221100007717331	208111
	1101001 1111	1		

218.	Mahenoor Haider Ali	gho34566	123456	Invalid Data
219.	Mahenoor Haider Ali	gho34566	1234567	Login
220.	Mahenoor Haider Ali	gho34566	12345678	Login
221.	Mahenoor Haider Ali	gho34566	12345678910	Login
222.	Mahenoor Haider Ali	gho34566	12345678911234	Login
223.	Mahenoor Haider Ali	gho34566	123456789112345	Login
224.	Mahenoor Haider Ali	gho34566	224466889977551	Login
225.	Mahenoor Haider Ali	code22246	123456	Invalid Data
226.	Mahenoor Haider Ali	code22246	1234567	Login
227.	Mahenoor Haider Ali	code22246	12345678	Login
228.	Mahenoor Haider Ali	code22246	12345678910	Login
229.	Mahenoor Haider Ali	code22246	12345678911234	Login
230.	Mahenoor Haider Ali	code22246	123456789112345	Login
231.	Mahenoor Haider Ali	code22246	224466889977551	Login
232.	Mahenoor Haider Ali	pinx123456	123456	Invalid Data
233.	Mahenoor Haider Ali	pinx123456	1234567	Login
234.	Mahenoor Haider Ali	pinx123456	12345678	Login
235.	Mahenoor Haider Ali	pinx123456	12345678910	Login
236.	Mahenoor Haider Ali	pinx123456	12345678911234	Login
237.	Mahenoor	pinx123456	123456789112345	Login

	Haider Ali			
238.	Mahenoor	pinx123456	224466889977551	Login
230.	Haider Ali		22110000))//331	Login
239.	Mahenoor	putx4445556	123456	Invalid
	Haider Ali			Data
240.	Mahenoor	putx4445556	1234567	Invalid
	Haider Ali			Data
241.	Mahenoor	putx4445556	12345678	Invalid
	Haider Ali			Data
242.	Mahenoor	putx4445556	12345678910	Invalid
	Haider Ali			Data
243.	Mahenoor	putx4445556	12345678911234	Invalid
	Haider Ali			Data
244.	Mahenoor	putx4445556	123456789112345	Invalid
	Haider Ali			Data
245.	Mahenoor	putx4445556	224466889977551	Invalid
	Haider Ali			Data
246.	Aleaxander	123ab	123456	Invalid
	Hamillton			Data
247.	Aleaxander	123ab	1234567	Invalid
	Hamillton			Data
248.	Aleaxander	123ab	12345678	Invalid
	Hamillton			Data
249.	Aleaxander	123ab	12345678910	Invalid
	Hamillton			Data
250.	Aleaxander	123ab	12345678911234	Invalid
	Hamillton			Data
251.	Aleaxander	123ab	123456789112345	Invalid
	Hamillton			Data
252.	Aleaxander	123ab	224466889977551	Invalid
	Hamillton			Data
253.	Aleaxander	123abc	123456	Invalid
	Hamillton			Data
254.	Aleaxander	123abc	1234567	Login
	Hamillton			
255.	Aleaxander	123abc	12345678	Login
	Hamillton			
256.	Aleaxander	123abc	12345678910	Login
	Hamillton			

257.	Aleaxander Hamillton	123abc	12345678911234	Login
258.	Aleaxander Hamillton	123abc	123456789112345	Login
259.	Aleaxander Hamillton	123abc	224466889977551	Login
260.	Aleaxander Hamillton	567mnop	123456	Invalid Data
261.	Aleaxander Hamillton	567mnop	1234567	Login
262.	Aleaxander Hamillton	567mnop	12345678	Login
263.	Aleaxander Hamillton	567mnop	12345678910	Login
264.	Aleaxander Hamillton	567mnop	12345678911234	Login
265.	Aleaxander Hamillton	567mnop	123456789112345	Login
266.	Aleaxander Hamillton	567mnop	224466889977551	Login
267.	Aleaxander Hamillton	gho34566	123456	Invalid Data
268.	Aleaxander Hamillton	gho34566	1234567	Login
269.	Aleaxander Hamillton	gho34566	12345678	Login
270.	Aleaxander Hamillton	gho34566	12345678910	Login
271.	Aleaxander Hamillton	gho34566	12345678911234	Login
272.	Aleaxander Hamillton	gho34566	123456789112345	Login
273.	Aleaxander Hamillton	gho34566	224466889977551	Login
274.	Aleaxander Hamillton	code22246	123456	Invalid Data
275.	Aleaxander Hamillton	code22246	1234567	Login
276.	Aleaxander	code22246	12345678	Login

	Hamillton			
277.	Aleaxander Hamillton	code22246	12345678910	Login
278.	Aleaxander Hamillton	code22246	12345678911234	Login
279.	Aleaxander Hamillton	code22246	123456789112345	Login
280.	Aleaxander Hamillton	code22246	224466889977551	Login
281.	Aleaxander Hamillton	pinx123456	123456	Invalid Data
282.	Aleaxander Hamillton	pinx123456	1234567	Login
283.	Aleaxander Hamillton	pinx123456	12345678	Login
284.	Aleaxander Hamillton	pinx123456	12345678910	Login
285.	Aleaxander Hamillton	pinx123456	12345678911234	Login
286.	Aleaxander Hamillton	pinx123456	123456789112345	Login
287.	Aleaxander Hamillton	pinx123456	224466889977551	Login
288.	Aleaxander Hamillton	putx4445556	123456	Invalid Data
289.	Aleaxander Hamillton	putx4445556	1234567	Invalid Data
290.	Aleaxander Hamillton	putx4445556	12345678	Invalid Data
291.	Aleaxander Hamillton	putx4445556	12345678910	Invalid Data
292.	Aleaxander Hamillton	putx4445556	12345678911234	Invalid Data
293.	Aleaxander Hamillton	putx4445556	123456789112345	Invalid Data
294.	Aleaxander Hamillton	putx4445556	224466889977551	Invalid Data
295.	Hubert Blaine	123ab	123456	Invalid Data

296. Hubert Blaine Grayson 123ab 1234567 Invalid Data 297. Hubert Blaine Grayson 123ab 12345678 Invalid Data 298. Hubert Blaine Grayson 123ab 12345678910 Invalid Data 299. Hubert Blaine Grayson 123ab 12345678911234 Invalid Data 300. Hubert Blaine Grayson 123ab 123456789112345 Invalid Data 301. Hubert Blaine Grayson 123ab 224466889977551 Invalid Data 302. Hubert Blaine Grayson 123abc 123456 Invalid Data 303. Hubert Blaine Grayson 123abc 1234567 Login 304. Hubert Blaine 123abc 12345678 Login		Grayson			
Blaine Grayson Compared to the compared	206	•	122ah	1224567	Involid
297. Hubert 123ab 12345678 Invalid Data	290.		123a0	1234307	
297. Hubert 123ab 12345678 Invalid Data					Data
Blaine Grayson 123ab 12345678910 Invalid Data	207	•	122ah	12245679	Involid
298. Hubert 123ab 12345678910 Invalid Data	291.		123ab	12343076	
298. Hubert Blaine Grayson 123ab 12345678910 Invalid Data 299. Hubert Blaine Grayson 123ab 12345678911234 Invalid Data 300. Hubert Blaine Grayson 123456789112345 Invalid Data 301. Hubert Hubert Blaine Grayson 123ab 224466889977551 Invalid Data 302. Hubert Blaine Grayson 123abc 123456 Invalid Data 303. Hubert Blaine Grayson 1234567 Login 304. Hubert Blaine Grayson 12345678 Login					Data
Blaine Grayson 123ab 12345678911234 Invalid Data	200	•	122 ala	12245679010	Tali d
299. Hubert 123ab 12345678911234 Invalid Data	298.		123ab	123430/8910	
299. Hubert Blaine Grayson 123ab 12345678911234 Invalid Data 300. Hubert Blaine Grayson 123ab 123456789112345 Invalid Data 301. Hubert Blaine Grayson 123ab 224466889977551 Invalid Data 302. Hubert Blaine Grayson 123abc 123456 Invalid Data 303. Hubert Blaine Grayson 1234567 Login 304. Hubert Blaine 123abc 12345678 Login					Data
Blaine Grayson 300. Hubert Blaine Grayson 301. Hubert Blaine Grayson 302. Hubert Blaine Grayson 303. Hubert Blaine Grayson 304. Hubert Blaine Grayson 123ab 123456789112345 Invalid Data 123ab 1234567 1234567 Login 123ab 12345678 Login	200		122-1-	10245770011024	T1: J
300. Hubert 123ab 123456789112345 Invalid Data	299.		123ab	123436/8911234	
300. Hubert Blaine Grayson 123ab 123456789112345 Invalid Data 301. Hubert Blaine Grayson 123ab 224466889977551 Invalid Data 302. Hubert Blaine Grayson 123abc 123456 Invalid Data 303. Hubert Blaine Grayson 123abc 1234567 Login 304. Hubert Blaine 123abc 12345678 Login					Data
Blaine Grayson 301. Hubert Blaine Grayson 302. Hubert Blaine Grayson 303. Hubert Blaine Grayson 304. Hubert Blaine Grayson 123abc 1234567 1234567 1234567 1234567 1234567 Login 123abc 12345678 Login	200	i	422.1	102456700110245	T 1:1
301. Hubert 123ab 224466889977551 Invalid Data	300.		123ab	123456/89112345	
301. Hubert 123ab 224466889977551 Invalid Data Grayson 123abc 123456 Invalid Data Grayson 123abc 123456 Invalid Data Grayson 123abc 1234567 Login 303. Hubert 123abc 1234567 Login Grayson 123abc 12345678 Login					Data
Blaine Grayson 302. Hubert Blaine Grayson 303. Hubert Blaine Grayson 304. Hubert Blaine Grayson 123abc 1234567 1234567 Login 123abc 12345678 Login	201	•	100.1	224455000077777	
Grayson 302. Hubert 123abc 123456 Invalid Data Grayson 303. Hubert 123abc 1234567 Login Blaine Grayson 304. Hubert 123abc 12345678 Login	301.		123ab	224466889977551	
302. Hubert 123abc 123456 Invalid Data Grayson 1234567 Login 303. Hubert 123abc 1234567 Login Grayson 123abc 12345678 Login					Data
Blaine Grayson 303. Hubert Blaine Grayson 304. Hubert Blaine Blaine Grayson 12345678 Login Login 12345678 Login		•			
Grayson 123abc 1234567 Login	302.		123abc	123456	
303. Hubert 123abc 1234567 Login Blaine Grayson 123abc 12345678 Login 304. Hubert 123abc 12345678 Login					Data
Blaine Grayson 304. Hubert Blaine 123abc 12345678 Login		•			
Grayson 304. Hubert 123abc 12345678 Login Blaine	303.		123abc	1234567	Login
304. Hubert 123abc 12345678 Login					
Blaine					
	304.		123abc	12345678	Login
Grayson		Blaine			
		Grayson			
305. Hubert 123abc 12345678910 Login	305.		123abc	12345678910	Login
Blaine		Blaine			
Grayson		•			
306. Hubert 123abc 12345678911234 Login	306.		123abc	12345678911234	Login
Blaine		Blaine			
Grayson		Grayson			
307. Hubert 123abc 123456789112345 Login	307.	Hubert	123abc	123456789112345	Login
Blaine		Blaine			
Grayson		Grayson			
308. Hubert 123abc 224466889977551 Login	308.	Hubert	123abc	224466889977551	Login
Blaine		Blaine			

	Grayson			
309.	Hubert	567mnop	123456	Invalid
207.	Blaine	Солинор	120100	Data
	Grayson			Data
310.	Hubert	567mnop	1234567	Login
310.	Blaine	Зотинор	1254507	Login
	Grayson			
311.	Hubert	567mnop	12345678	Login
311.	Blaine	307IIIIOp	12343070	Login
	Grayson			
312.	Hubert	567mnop	12345678910	Login
312.	Blaine	307 milop	12343070710	Login
	Grayson			
313.	Hubert	567mnop	12345678911234	Login
313.	Blaine	30711110p	12343070711234	Logiii
314.	Grayson Hubert	567mnon	123456789112345	Login
314.	Blaine	567mnop	123430769112343	Login
315.	Grayson Hubert	567mn on	224466889977551	I a min
313.	Blaine	567mnop	224400889977331	Login
216	Grayson	124566	122456	7 11 . 1
316.	Hubert	gho34566	123456	Invalid
	Blaine			Data
217	Grayson	1 24566	1004565	T .
317.	Hubert	gho34566	1234567	Login
	Blaine			
210	Grayson	1 24566	10045650	
318.	Hubert	gho34566	12345678	Login
	Blaine			
210	Grayson	1 015	10015 (70010	
319.	Hubert	gho34566	12345678910	Login
	Blaine			
	Grayson			
320.	Hubert	gho34566	12345678911234	Login
	Blaine			
	Grayson			
321.	Hubert	gho34566	123456789112345	Login
	Blaine			

	Grayson			
322.	Hubert	gho34566	224466889977551	Login
322.	Blaine	g1103 1300	22110000))///331	Login
	Grayson			
323.	Hubert	code22246	123456	Invalid
323.	Blaine	COUCZZZ40	123430	Data
	Grayson			Data
324.	Hubert	code22246	1234567	Login
324.	Blaine	Code22240	1234307	Login
	Grayson			
325.	Hubert	code22246	12345678	Login
323.	Blaine	Code22240	12343076	Login
326.	Grayson Hubert	code22246	12345678910	Login
320.	Blaine	Code22240	12343076910	Login
327.	Grayson Hubert	code22246	12345678911234	Login
321.	Blaine	Code22240	12343076911234	Login
328.	Grayson Hubert	code22246	123456789112345	Login
326.	Blaine	Code22240	123430707112343	Login
	Grayson			
329.	Hubert	code22246	224466889977551	Login
329.	Blaine	Code22240	224400009977331	Login
	Grayson			
330.	Hubert	pinx123456	123456	Invalid
330.	Blaine	pilix123430	123430	Data
				Data
331.	Grayson Hubert	pinx123456	1234567	Login
331.	Blaine	pilix123430	1434307	rogiii
	Grayson			
332.	Hubert	pinx123456	12345678	Login
332.	Blaine	piiix123430	12343070	Login
	Grayson			
333.	Hubert	pinx123456	12345678910	Login
333.	Blaine	piiix123430	12343010310	Login
	Grayson			
334.	Hubert	pinx123456	12345678911234	Login
334.	Blaine	piiix123430	12343010711234	Login
	Dianic			

	Grayson			
335.	Hubert	pinx123456	123456789112345	Login
	Blaine			
	Grayson			
336.	Hubert	pinx123456	224466889977551	Login
	Blaine			_
	Grayson			
337.	Hubert	putx4445556	123456	Invalid
	Blaine			Data
	Grayson			
338.	Hubert	putx4445556	1234567	Invalid
	Blaine			Data
	Grayson			
339.	Hubert	putx4445556	12345678	Invalid
	Blaine			Data
	Grayson			
340.	Hubert	putx4445556	12345678910	Invalid
	Blaine			Data
	Grayson			
341.	Hubert	putx4445556	12345678911234	Invalid
	Blaine			Data
	Grayson			
342.	Hubert	putx4445556	123456789112345	Invalid
	Blaine			Data
	Grayson			
343.	Hubert	putx4445556	224466889977551	Invalid
	Blaine			Data
	Grayson			

✓ => Valid input × => Invalid input

5. Strong Robust Equivalence Class Partitioning:

> Function 1:Manage_Appointment (int noOfappointment)

• Constraint:

Appointments has be at least 3 and at most 10

Test cases:

Normal value: 6

Upper robust value: 11 Lower robust value: 2

Case	noOfappointment	Expected output
1	6	Make Schedule
2	11	Invalid
3	2	Invalid

✓ => Valid input

x => Invalid input

> Function 2: PayBill(Double amount)

Constraint:

Bill should be greater than or equal to PRs.300 and less than or equal to PRs. 3000

Test cases:

Normal value: 2000

Upper robust value: 3001 Lower robust value: 299

Case	amount Expected out		
1	2000	Make Medical Receipt	
2	3001	Invalid data	
3	299	Invalid data	

✓ => Valid input

x => Invalid input

> Function 3: Sign-up (String name, String password, String contact_no)

• Constraint:

Name should be less than or equal to 20 alphabet character and should be greater than or equal to 6 character.

Password should contain 6 characters at least and at most 10 characters.

Contact_no should be less than or equal to 15 digit and greater than or equal to 7 digit.

Test cases:

For Name:

Normal value: Thommas

Upper robust value: Hubert Blaine Grayson (spaces are also

considered)

Lower robust value: Jonas

For **Password**:

Normal value: gho34566

Upper robust value: putx4445556

Lower robust value: 123ab

For **Contact_no**:

Normal value: 12345678911

Upper robust value: 2244668899775512

Lower robust value: 123456

Case	Name	outp		Expected output
1	Hubert Blaine Grayson	putx4445556	224466889977551 2	Invalid Data
2	Hubert Blaine Grayson	putx4445556	12345678911	Invalid Data
3	Hubert Blaine Grayson	gho34566	224466889977551 2	Invalid Data
4	Thommas	putx4445556	224466889977551 2	Invalid Data
5	Hubert Blaine Grayson	gho34566	12345678911	Invalid Data
6	Thommas	putx4445556	12345678911	Invalid Data
7	Thommas	gho34566	224466889977551 2	Invalid Data

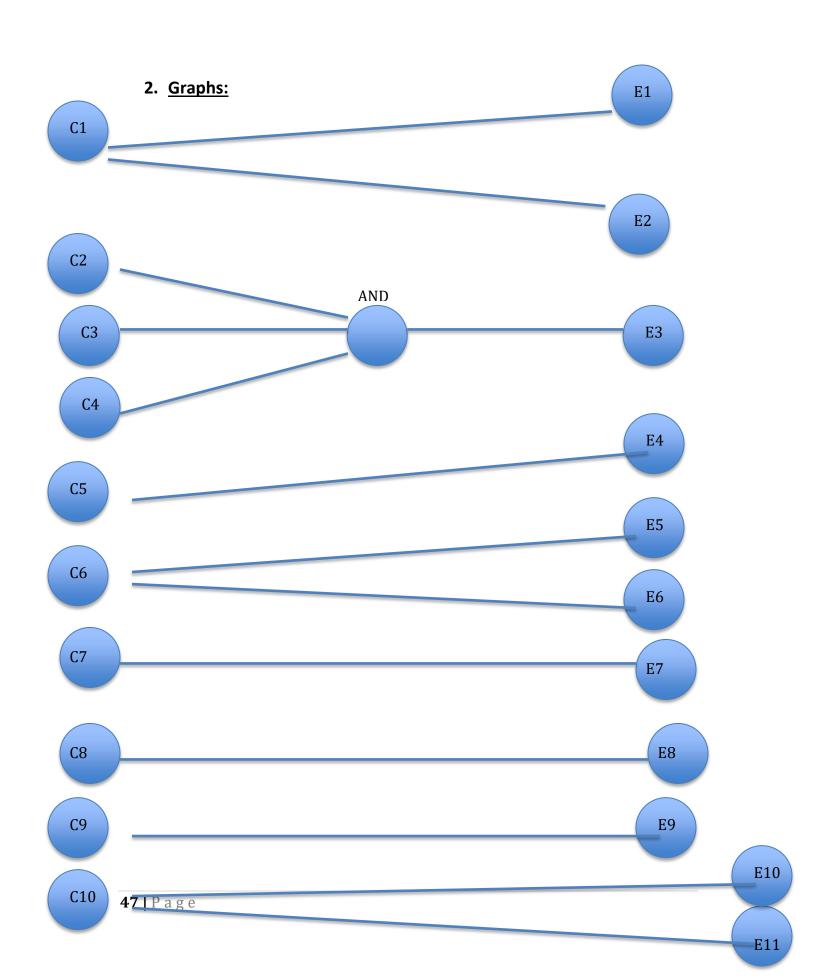
8	Jonas	123ab	123456	Invalid Data
9	Jonas	123ab	12345678911	Invalid Data
10	Jonas	gho34566	123456	Invalid Data
11	Thommas	123ab	123456	Invalid Data
12	Thommas	gho34566	123456	Invalid Data
13	Jonas	gho34566	12345678911	Invalid Data
14	Thommas	123ab	12345678911	Invalid Data
15	Thommas	gho34566	12345678911	Login

6. Cause Effect Graphing

1. Identify Causes and effects

Causes	Effects
C1: Doctors uploads patient medical history on portal	E1: Patient medical history will be visible to the patient
	E2: Patient medical history will be visible to the doctor
C2: User enters name in string, which is less than or equal to 20 alphabet characters and greater than or equal to 6 characters.	E3: Registered
C3: User enters password in string, which is at least 6 characters and at most 10 characters.	
C4: User enters contact no in digits, which is at least 7 digits and at most 15 digits.	
C5: User enters password in string, which is at least 6 characters and at most 10 characters.	E4: Logins

C6: Patient gets transferred from one clinic to another	E5: Visited clinic doctor can view medical history of that patient
	E6: Visited clinic doctor can view personal information of that patient
C7: Patient pays bill within range of PR. 300 to PR. 3000 according to patient's treatment	E7: Provide a medical receipt to patient
C8: Patient requests for making an appointment	E8: Receptionist manages appointment details.
C9: If Appointments made are at least 3	E9: Doctors can make their schedule
and at most 10 in a day.	according to patients appointments
C10: Once patients appointment gets	E10: Patient can see online how many
confirmed	people are waiting in queue for
	appointment.
	E11: Receptionist saves appointment
	details.



3. Decision Table:

		T1	T2	T3	T4	T5	T6	T7	T8
cause	C1	1	0	0	0	0	0	0	0
cause	C2	0	1	0	0	0	0	0	0
cause	C3	0	1	0	0	0	0	0	0
cause	C4	0	1	0	0	0	0	0	0
cause	C5	0	0	1	0	0	0	0	0
cause	C6	0	0	0	1	0	0	0	0
cause	C7	0	0	0	0	1	0	0	0
cause	C8	0	0	0	0	0	1	0	0
cause	C9	0	0	0	0	0	0	1	0
cause	C10	0	0	0	0	0	0	0	1
Effect	E1	1	_	_	_	-	_	-	-
Effect	E2	1	_	_	_	-	_	-	-
Effect	E3	-	1	-	-	-	-	-	-
Effect	E4	-	-	1	-	-	-	-	-
Effect	E5	_	_	_	1	-	-	-	-
Effect	E6	-	-	-	1	-	-	-	-
Effect	E7	-	-	-	-	1	-	-	-
Effect	E8	-	-	-	-	-	1	-	-
Effect	E9	-	-	-	-	-	-	1	-
Effect	E10	-	-	-	-	-	-	-	1
Effect	E11	-	-	-	-	-	-	-	1

4. Identifying Test cases:

Test cases	Input (Cause)	Expected Output (Effect)
1	 name >=6 && name <=20 password>=6&&password<=10 contact_no>=7&&contact_no<=15 	Registered
2	• password>=6 && password<=10	Login
3	• bill>=300 && bill<=3000	Generate medical receipt
4	• appointments>=3 && appointments<=10	Make schedule

5. Test cases:

Applying Weak Robust Equivalence Class.

Test case #	Inputs (causes)			Expected Output (effects)
T1	Name	Password	Contact_no	
	Jonas	123ab	123456	Invalid
	Thommas	gho34566	12345678911	Valid (registered)
	Keannaemilyelizebeth	putx4445556	2244668899775512	Invalid
T2				
	Password			Invalid
	123ab gho34566			Valid (login)
	putx4445556			Invalid
T3				
	Bill			Invalid
	299			X7.11.1
	2000			Valid (generate medical receipt)
	3001			Invalid
T4				
	Appointment			Invalid
	6			Valid (makes schedule)
	11			Invalid

Reasoning to choose the Equivalence Class:

The Reason to choose the Equivalence Class is that it reduces the number of test cases so; the effort and the time are also reduced without the compromise on the overall testing.