

# Design Document for Pathology Lab VBA Application

VBA Project by Pranjal Dhamane, Asif Sayyed and Soham Vikhare

## Application Overview

The purpose of this VBA application is to streamline the patient information management and billing process for a pathology lab. The application will allow lab technicians to input patient information via user forms, which will be automatically stored in an Excel worksheet. The application will also allow technicians to quickly generate bills for patients by providing the patient's unique ID. the application will eliminate the need for manual data entry and reduce the chances of errors. Additionally, the ability to generate bills quickly and easily will save time for the lab technicians and provide a better experience for patients.

## Sheets for the application

- Data Sheet

The "Data" sheet will contain the following columns:

1. Date: This column will store the date the patient was added to the system.
2. Unique ID: This column will store a unique ID for each patient.
3. First Name: This column will store the patient's first name.
4. Middle Name: This column will store the patient's middle name.
5. Last Name: This column will store the patient's last name.
6. Phone Number: This column will store the patient's phone number.
7. Date: This column will store the day the patient was born.
8. Month: This column will store the month the patient was born.
9. Year: This column will store the year the patient was born.
10. DOB: This column will store the patient's date of birth in the format of "DD-MM-YYYY".
11. Gender: This column will store the patient's gender.
12. Age: This column will calculate the patient's age from their birth year and the current year.
13. Blood Group: This column will store the patient's blood group.
14. Consulted By: This column will store the name of the doctor who consulted the patient.
15. Collection Centre: This column will store the location where the patient's sample was collected.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Date	Unique ID	First Name	Middle Name	Last Name	Phone Number	Date	Month	Year	DOB	Gender	Age	Blood Group	Consulted by	Collection Centre
2	01-01-2023	908024	Asif	Afrab	Sayyed	7658934065	11	4	2006	11-4-2006	Male	17	O+	Dr. Sameer Verma	Vikhare Hospital
3	02-01-2023	423432	Pranjal	Avinash	Dhamane	9225401889	19	3	2002	19-3-2002	Female	21	AB+	Dr. Pranjal Dhamane	Dhamane Dermatology Centre
4	03-01-2023	574535	Soham	Sunil	Vikhare	8345715685	26	9	2005	26-9-2005	Male	18	B-	Dr. Asif Sayyed	Dhamane Dermatology Centre
5	04-01-2023	490598	Emily	Rose	Smith	7497819548	8	6	2015	8-6-2015	Female	8	A+	Dr. Sameer Verma	Vikhare Hospital
6	05-01-2023	921802	Joshua	Michael	Lee	9774701572	3	9	2002	3-9-2002	Male	21	A-	Dr. Soham Vikhare	Sayyed Dialysis Centre
7	06-01-2023	758065	Ava	Grace	Johnson	7713586494	20	11	2009	20-11-2009	Female	14	O+	Dr. Pranjal Dhamane	Dhamane Dermatology Centre
8	07-01-2023	682368	William	David	Green	9522593855	29	12	2003	29-12-2003	Male	20	AB-	Dr. Soham Vikhare	Sayyed Dialysis Centre
9	08-01-2023	549569	Sophia	Elizabeth	Davis	9435442320	16	8	2000	16-8-2000	Female	23	B+	Dr. Sameer Verma	Vikhare Hospital
10	09-01-2023	673379	Benjamin	Thomas	Scott	7331397537	5	7	2013	5-7-2013	Male	10	A-	Dr. Asif Sayyed	Dhamane Dermatology Centre
11	10-01-2023	758681	Isabella	Marie	Rodriguez	7107660148	28	2	2008	28-2-2008	Female	15	O-	Dr. Pranjal Dhamane	Dhamane Dermatology Centre
12	11-01-2023	477602	Nathan	James	Cooper	7496943559	22	10	2016	22-10-2016	Male	7	AB+	Dr. Asif Sayyed	Dhamane Dermatology Centre
13	12-01-2023	198927	Olivia	Mae	Hernandez	8857083413	17	5	2005	17-5-2005	Male	18	A+	Dr. Soham Vikhare	Sayyed Dialysis Centre
14	13-01-2023	764232	Samuel	Joseph	Perez	9036212175	19	12	2011	19-12-2011	Female	12	B-	Dr. Sameer Verma	Vikhare Hospital
15	14-01-2023	970235	Charlotte	Anne	Wilson	9502910862	7	3	2001	7-3-2001	Female	22	O+	Dr. Soham Vikhare	Sayyed Dialysis Centre
16	15-01-2023	433168	Christopher	John	Martin	9590940074	14	9	2018	14-9-2018	Male	5	AB-	Dr. Pranjal Dhamane	Dhamane Dermatology Centre
17	16-01-2023	490931	Madison	Lee	Brown	7079683951	2	11	2004	2-11-2004	Male	19	B-	Dr. Asif Sayyed	Dhamane Dermatology Centre
18	17-01-2023	635495	Alexander	Edward	Turner	8482152563	25	1	2012	25-1-2012	Male	11	A+	Dr. Sameer Verma	Vikhare Hospital

- Billings Sheet

The "Billings" sheet will contain the following columns:

1. Unique ID: This column will contain a unique ID for each patient. The ID will be generated automatically by the VBA application when the user fills out the patient information form. This column will be used as a key to link the patient information to the tests and their prices.
2. Test: This column will contain the name of each test that the patient has undergone. The test names will be entered automatically by the lab technician based on the patient's test selections.
3. Price: This column will contain the price of each test that the patient has undergone. The prices will be automatically populated by the VLOOKUP function based on the test names chosen by the patient, The data for the tests and prices will be stored in another sheet named "TP".

	A	B	C
1	Unique ID	Tests	Amount
2	908024	Biochemistry	450
3	908024	Routine Urine Examination	350
4	908024	Liver function test	675
5	423432	Renal function test	575
6	423432	Rapid Antigen Test for COVID-19	800
7	574535	Complete Blood Count	230
8	574535	Erythrocyte Sedimentation Rate	650
9	574535	Routine Urine Examination	350
10	574535	Biochemistry	450
11	574535	Ferritin	450
12	490598	Liver function test	675
13	490598	Rapid Antigen Test for COVID-19	800
14	921802	Renal function test	575
15	758065	Routine Urine Examination	350
16	758065	Ferritin	450
17	758065	Erythrocyte Sedimentation Rate	650
18	758065	Biochemistry	450
19	682368	Complete Blood Count	230
20	682368	Liver function test	675
21	549569	Routine Urine Examination	350
22	673379	Rapid Antigen Test for COVID-19	800
23	673379	Complete Blood Count	230
24	673379	Liver function test	675
25	673379	Renal function test	575
26	673379	Complete Blood Count	230
27	758681	Erythrocyte Sedimentation Rate	650
28	758681	Ferritin	450

- TP Table

The "TP Table" Sheet contains two column test name and price

Bills sheet will use a VLOOKUP function to automatically retrieve test prices from the "TP" worksheet based on the test names selected by the lab technician. When a lab technician selects a test on the test selection form, the VLOOKUP function will automatically search the "TP" worksheet for the corresponding test name and return the associated price.

- **FORM DESIGN (DATA ENTRY)**

APS Pathology Lab - Data Register

**Personal Information**

First Name Middle Name Last Name

Date of Birth

Date Month Year

Enter Blood Group Phone Number

Choose Your Gender

Male  
Female  
Others

**Other Details**

Consultant Doctor

Collection Centres

Submit Cancel

**APS PATHOLOGY LABORATORY**

AAP HAME KHOON DO  
HAM AAPKO REPORT  
DENGUE

VBA Case Study Project by  
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**Choose Tests**

Patient's Unique ID:  
492439

☐ MALARIA ANTIGEN TEST  
☐ RAPID ANTIGEN TEST FOR COVID-19  
☐ ERYTHOCYTE SEDIMENTATION RATE  
☐ COMPLETE BLOOD COUNT  
☐ RENAL FUNCTION TEST  
☐ FERRITIN  
☐ LIVER FUNCTION TEST  
☐ ROUTINE URINE EXAMINATION

The "Data Entry" userform will include several controls to capture patient information, including:

1. Textbox controls for the patient's first name, middle name, last name, and phone number.
2. Combo box controls for the patient's date of birth (DOB), blood group, consulting doctor, and collection centre.
3. Option button controls for the patient's gender.
4. Checkbox controls for each required test.
5. Submit button contains the code for validating and updating the data on the sheets
6. Cancel button will unload the userform

When the user fills out the form and clicks the submit button, the patient information will be stored linked with a unique id in an Excel worksheet named "Data", and the selected tests will be stored in another worksheet named "Bill". The VLOOKUP function will be used to retrieve the prices of the selected tests from another worksheet named "TP".

- **The Tab Order is as follows**

First Name > Middle Name > Last Name > Date > Month > Year > Male > Female > Others > Blood Group > Phone Number > Consulting Doctor > Collection Centre > Tests > Cancel > Submit

APS Pathology Labs - Billings

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Enter Patient's Unique ID:

908024

APS TEST RECORDS

908024	Malaria Antigen Test	450
908024	Routine Urine Examin	100
908024	Liver function test	900

Search

Cancel

Payable Amount: 1450

The "Billings" userform will include several controls, including:

1. Text box control for the user to enter the unique ID.
2. List box control to display the billing information.
3. Label control to display the total payable amount due for the customer.

When the user enters the unique ID and clicks the search button, the application will search the "Billings" worksheet for the corresponding billing information. If found, the information will be displayed in the list box control. If not found, an error message will be displayed.

The total payable amount due for the customer will be calculated by summing the prices of all tests associated with the unique ID provided by the user.

- **Tab Order is as follows:**

Unique ID > Search > Cancel > List Box