

Form Recogniser

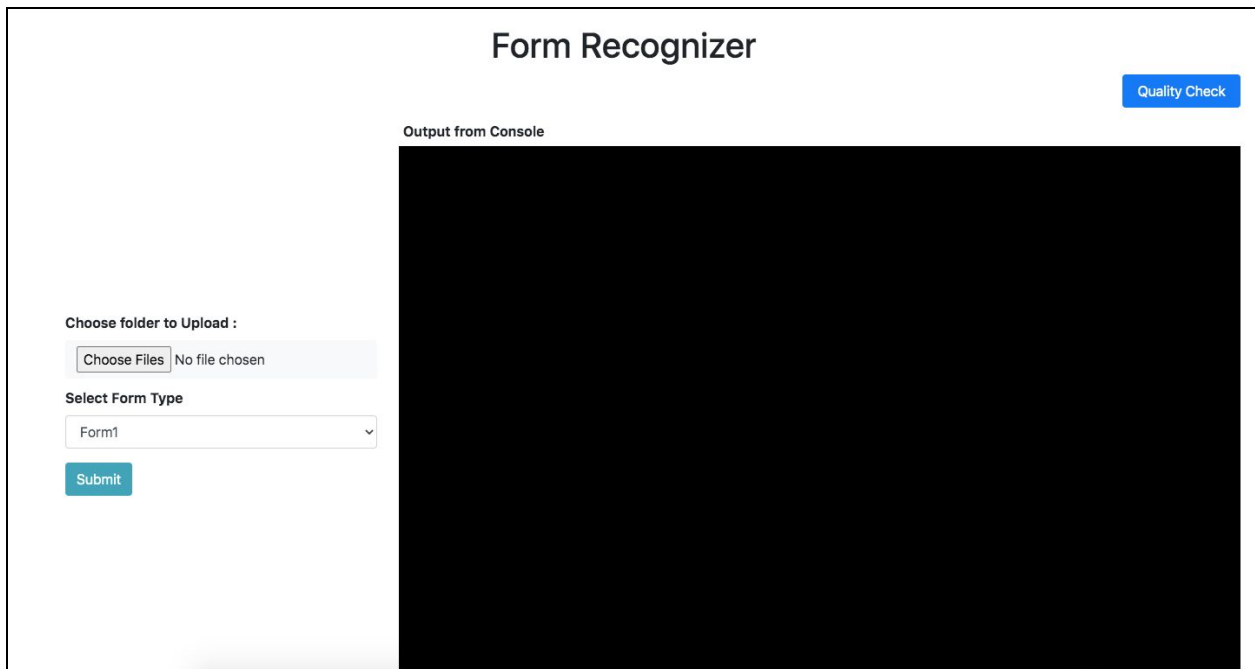
This is the **tutorial document** for using the tool Form Recongniser.

This application is used to extract text from scanned images of filled forms. The extracted text is organised in a Key-Value map and stored in json.

General Photograph Guidelines

- Ensure the quality of image texts should be clearly visible in sufficient brightness.
- Images should not have background texts.
- Take Photographs from the top view of the document.
- Properly clicked straight photos will result in more accurate results and reduce the effort while doing Quality Check.

Screen 1: Processing the images





The screenshot shows the 'Form Recognizer' web application. The title 'Form Recognizer' is centered at the top. In the top right corner, there is a blue button labeled 'Quality Check'. Below the title, on the left side, there is a section for file upload. It includes the text 'Choose folder to Upload :', a button labeled 'Choose Files', and a status indicator 'No file chosen'. Below this is a 'Select Form Type' dropdown menu with 'Form1' selected. A blue 'Submit' button is located below the dropdown. To the right of the upload section, there is a large black rectangular area labeled 'Output from Console' at the top left.

Users can select the folder which contains the raw images of the filled forms and the type of form that needs to be processed.

Form 1

EXACT SCIENCES LABORATORIES COLOGUARD® ORDER REQUISITION FORM <small>Stool-based DNA test with hemoglobin immunoassay component</small>		EXACT SCIENCES LABORATORIES, LLC 145 E Badger Rd, Ste 100, Madison, WI 53713 p: 844-870-8870 ExactLabs.com NPI: 1629407069 TIN: 463095174										
Provider & Order Information <small>Recommended type of Provider Information Editable, printable PDF available at exactlabs.com</small>												
PROVIDER INFORMATION Healthcare Organization Name: _____ Provider Name: _____ NPI #: <table border="1" style="display: inline-table;"><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> Location Address: _____ City, State, Zip: _____ Phone Number: _____ Secure Fax Number*: _____ <small>*To receive results for this order, please provide secure FAX number only</small>											ORDER INFORMATION <small>This section is not intended to influence the medical judgment of an ordering provider in determining whether this test is right for any particular patient. The following codes are listed as a convenience. Ordering practitioners should report the diagnosis code(s) that best describes the reason for performing the test.</small> ICD-10 Code: <input type="radio"/> Z12.11 and Z12.12 (Encounter for screening for malignant neoplasm of colon [Z12.11] and rectum [Z12.12]) <input type="radio"/> Other(s): _____ Certification <small>I am a licensed healthcare provider authorized to order Cologuard. This test is medically necessary and the patient is eligible to use Cologuard. I will maintain the privacy of test results and related information as required by HIPAA. I authorize Exact Sciences Laboratories to obtain reimbursement for Cologuard and to directly contact and collect additional samples from the patient as appropriate.</small> Ordering Provider Signature _____ Date of Order _____	
Patient Demographics <small>Attach a copy of the front & back of primary and/or secondary insurance cards</small> Patient ID/MRN: _____ Last Name: _____ First Name: _____ Sex: <input type="radio"/> Male <input type="radio"/> Female DOB (mm/dd/yyyy): _____ Shipping Address: _____ City, State, Zip: _____ Phone Number (required): <input type="radio"/> Home <input type="radio"/> Mobile <input type="radio"/> Work Language Preference (optional): _____ Billing Address: _____ <input type="checkbox"/> Same as Shipping City, State, Zip: _____												
PATIENT ETHNICITY AND RACE <small>The completion of this section is optional.</small> Is your patient of Hispanic or Latino origin or descent? <input type="radio"/> Yes <input type="radio"/> No Please mark one or more to indicate your patient's race: <input type="radio"/> White <input type="radio"/> Black or African-American <input type="radio"/> Asian <input type="radio"/> Native Hawaiian or other Pacific Islander <input type="radio"/> American Indian or Alaska Native												
Patient Insurance/Billing Information <small>Only completion of "Policyholder Name" and "Policyholder DOB" is necessary when attaching a copy of the front & back of primary and/or secondary insurance cards.</small> Does patient wish Exact Sciences to bill their insurance? <input type="radio"/> Yes (complete below) <input type="radio"/> No (patient will self-pay) Policyholder Name: _____ Policyholder DOB: _____ Relationship to patient: <input type="radio"/> Self <input type="radio"/> Spouse <input type="radio"/> Other Primary Insurance Carrier: _____ Type: <input type="radio"/> Private <input type="radio"/> Medicare <input type="radio"/> Medicare Advantage <input type="radio"/> Medicaid <input type="radio"/> Tricare Claims Submission Address: _____ Subscriber ID/Policy Number: _____ Group Number: _____ Plan: _____ Prior-Authorization Code (if available): _____												
PATIENT AUTHORIZATIONS, ASSIGNMENT OF BENEFITS (AOB) & FINANCIAL RESPONSIBILITIES <small>I authorize Exact Sciences Laboratories (Exact) to bill my insurance/health plan and furnish them with my Cologuard order information, test results, or other information requested for reimbursement. I assign all rights and benefits under my insurance plans to Exact and authorize Exact to appeal and contest any reimbursement denial, including in any administrative or civil proceedings necessary to pursue reimbursement. I authorize all reimbursements to be paid directly to the laboratory in consideration for services performed. I understand that I am responsible for any amount not paid, including amounts for non-covered services or services determined by my plan to be provided by an out-of-network provider. Further understood that if I am a Medicaid enrollee in a state where Exact is enrolled as a Medicaid provider, Exact will accept as payment in full the amounts paid by the Medicaid program, including deductible, co-insurance or copayment which may be required by the Medicaid program to be paid by me.</small> Patient Signature: _____ Date: _____												
<small>PRM-3004-05-c February 2019</small>												

Form 2

	EXACT SCIENCES LABORATORIES, LLC 145 E Badger Rd, Ste 100, Madison, WI 53713 p: 844-870-8870 ExactLabs.com																																							
INFORMATION NEEDED To Process a Cologuard® Order for Your Patient Month DD, YYYY Dear Cologuard Provider, Exact Sciences Laboratories has recently received a Cologuard order for your patient; however, the below requested information is required before we can process the order. Please complete the fields indicated below and fax the completed form to 1-844-870-8875.																																								
<table border="1"> <tr> <td>Cologuard Order Number:</td> <td></td> </tr> <tr> <td>Date Received by ES Labs:</td> <td></td> </tr> <tr> <td>Health Organization Name:</td> <td></td> </tr> <tr> <td>Provider Name:</td> <td></td> </tr> <tr> <td>Provider NPI:</td> <td></td> </tr> <tr> <td>ICD-10 Codes Z12.11 and Z12.12: <small>(Encounter for screening for malignant neoplasm of colon [Z12.11] and rectum [Z12.12]) The above codes are listed as a convenience. Ordering practitioners should report the diagnosis code(s) that best describes the reason for performing the test, regardless of whether the code is listed above or not.</small></td> <td></td> </tr> <tr> <td>Patient Name:</td> <td></td> </tr> <tr> <td>Patient Date of Birth:</td> <td></td> </tr> <tr> <td>Patient Sex:</td> <td></td> </tr> <tr> <td>Patient Phone Number:</td> <td></td> </tr> <tr> <td>Patient Shipping Address:</td> <td></td> </tr> <tr> <td>Please Confirm Secure Fax #: <small>For Results and Patient Information</small></td> <td></td> </tr> <tr> <td>Healthcare Provider Signature: <small>Please Sign this field if blank. We must have a valid Provider Signature to proceed.</small></td> <td></td> </tr> <tr> <td>Insurance Type: <small>(Medicare, Medicare Advantage, Medicaid, Insurance, Self Pay)</small></td> <td></td> </tr> <tr> <td>Insurance Carrier Name: <small>(Example: Blue Cross, Aetna) Please add the Claims address or fax a copy of the insurance card.</small></td> <td></td> </tr> <tr> <td>Subscriber ID:</td> <td></td> </tr> <tr> <td>Group Number:</td> <td></td> </tr> <tr> <td>Policy Owner/Holder Name:</td> <td></td> </tr> <tr> <td>Policy Owner/Holder Date of Birth:</td> <td></td> </tr> </table>			Cologuard Order Number:		Date Received by ES Labs:		Health Organization Name:		Provider Name:		Provider NPI:		ICD-10 Codes Z12.11 and Z12.12: <small>(Encounter for screening for malignant neoplasm of colon [Z12.11] and rectum [Z12.12]) The above codes are listed as a convenience. Ordering practitioners should report the diagnosis code(s) that best describes the reason for performing the test, regardless of whether the code is listed above or not.</small>		Patient Name:		Patient Date of Birth:		Patient Sex:		Patient Phone Number:		Patient Shipping Address:		Please Confirm Secure Fax #: <small>For Results and Patient Information</small>		Healthcare Provider Signature: <small>Please Sign this field if blank. We must have a valid Provider Signature to proceed.</small>		Insurance Type: <small>(Medicare, Medicare Advantage, Medicaid, Insurance, Self Pay)</small>		Insurance Carrier Name: <small>(Example: Blue Cross, Aetna) Please add the Claims address or fax a copy of the insurance card.</small>		Subscriber ID:		Group Number:		Policy Owner/Holder Name:		Policy Owner/Holder Date of Birth:	
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Thank you for your help! Sincerely, Exact Sciences Laboratories <small>This document contains information from Exact Sciences Laboratories which may be confidential in nature. The information is intended for the recipient only. If you are not the intended recipient, disclosure, copying, distribution or use of the contents is prohibited. If you have received this document in error, please notify Exact Sciences Laboratories at 1-844-870-8870.</small> If you have questions about Cologuard and/or this communication, please call our 24/7 Customer Support Center at 1-844-870-8870.																																								

Users can process raw images by triggering the text extraction API by clicking on **“Submit”**. The script progress output will be visible on the black console area.

The script will create an **“Output”** folder within the selected folder. The output json with extracted form details & the processed image will be stored in the Output folder.

Clicking on the **“Quality Check”** button will take the user to screen 2.

Screen 2: Checking Quality of extraction and saving to Google Cloud

<h3>Form Recognizer</h3>		<input type="button" value="Process Files"/>
Input Directory Path : <div style="border: 1px solid #ccc; height: 20px; width: 80%; margin-top: 5px;"></div>		
OR		
<input type="button" value="Choose Files"/>	No file chosen	
<input type="button" value="Submit"/>		

The user will be able to select the output folder in this step to verify the extracted form data. The output folder path can be pasted in the input area or choose the required folder. The “Process Files” button will take the user back to Screen 1.

Form Recognizer

Process Files

Input Directory Path :

/Users/swatiarya/FormExtractor/FormRecognizer/FileRecognizerUI/data/RawImages/Form2/output/

OR

Choose Files 40 files

Submit

After clicking on “submit” the processed images will be displayed on the left panel.





Input Directory Path :

/Users/swatiarya/FormExtractor/FormRecognizer/FileRecognizerUI/data/RawImages/Form2/output/

OR

Choose Files 40 files

Submit

All Forms	Selected Image	Output Json Data
 Form2Fresh1_aligned copy 2.png		
 Form2Fresh1_aligned copy 3.png		
 Form2Fresh1_aligned copy 4.png		
		

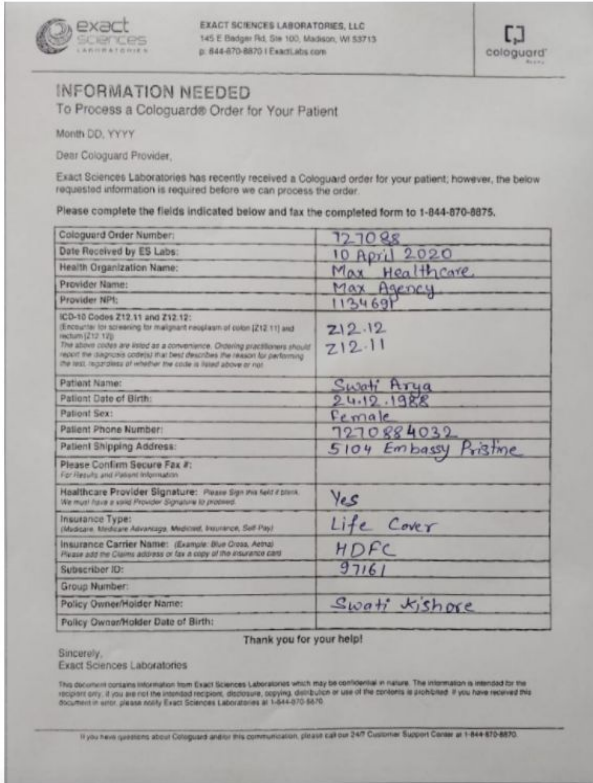
Click on any of the images will display the selected form in a larger space, and respective json with extracted form data.


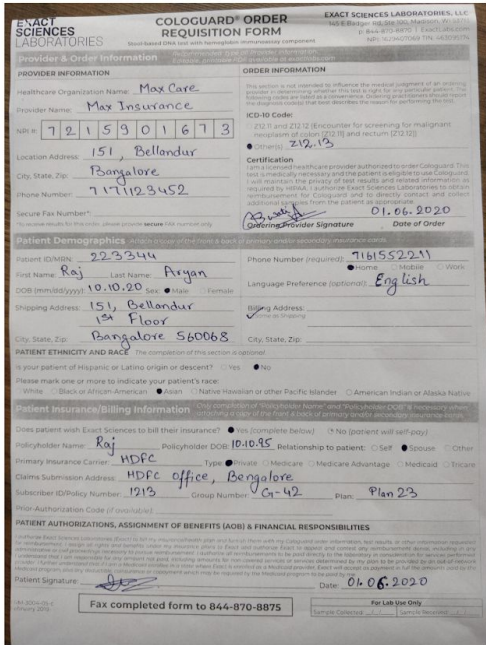
All Forms	Selected Image	Output Json Data
<p>Form2Fresh1_aligned copy 2.png</p>	<p>Form2Fresh1_aligned copy 3.png</p> <p>Form2Fresh1_aligned copy 4.png</p> <p>Form2Fresh1_aligned copy.png</p> <p>Form2Fresh2_aligned copy 2.png</p>	<p>QC Status : Completed</p> <p>ColoOrderNumber: 727088</p> <p>dateReceivedByESLab: 10 April 2020</p> <p>healthOrganizationName: Max Health care</p> <p>providerName: Max Agency</p> <p>providerNPI: 113469</p> <p>ICD-10: 212.12 212.11</p> <p>patientName: Swati Arya</p> <p>DateOfBirth: 24.12.1988</p> <p>patientSex: female</p> <p>patientPhoneNumber: 7270884032</p> <p>ShippingAddress: 5104 Embassy Pristine</p> <p>secureFaxNumber: </p> <p>healthcareProviderSign: Yes</p> <p>insuranceType: Life Cover</p> <p>insuranceCarrierName: HDFC</p> <p>subscriberId: 97161</p> <p>GroupNumber: </p> <p>PolicyHolderName: Swati Kishore</p> <p>PolicyHolderDOB: </p>

All Forms	Selected Image	Output Json Data
<p>Form1G3_aligned.png</p>	<p>Form1G3_aligned.png</p>	<p>QC Status : QCComplete-UploadPending</p> <p>Organisation Name: Max Care</p> <p>Provider Name: Max Insurance</p> <p>NPI: 7215901673</p> <p>Location Address: 151, Bellandur</p> <p>City, State, Zip: Bangalore</p> <p>Phone Number: 717 112 3 452</p> <p>Secure Fax Number: </p> <p>formType: Form 1</p> <p>ICD-10 Code Other: Other(s) 212.13</p> <p>Date of Order: 01.06. 2020</p> <p>Patient ID/MRN: 22 3 3 44</p> <p>First Name: Raj</p> <p>Last Name: Aryan</p> <p>DOB: 10.10. 20</p> <p>Sex: Male</p> <p>Shipping Address: 15 1, Bellandur 1st Floor</p>

This state “QCComplete-UploadPending” comes when user clicks on submit post doing the QC but due to internet unavailability the file is not saved successfully on the google cloud. First make sure the internet is connected properly and click submit again to upload the file successfully on the google cloud.

The user can compare the actual form and extracted data, make the required corrections in the extracted text. There is a “Submit” button below the displayed form data. Clicking on the button will save the changes and store the image & json file on Google cloud store. The QC status will change “Complete” after files are saved correctly.

Selected Image	Output Json Data
	<div>QC Status : Completed</div> <div>ColoOrderNumber: <input type="text" value="727088"/></div> <div>dateReceivedByESLab: <input type="text" value="10 April 2020"/></div> <div>healthOrganizationName: <input type="text" value="Max Health care"/></div> <div>providerName: <input type="text" value="Max Agency"/></div> <div>providerNPI: <input type="text" value="1134691"/></div> <div>ICD-10: <input type="text" value="212.12 212.11"/></div> <div>patientName: <input type="text" value="Swati Arya"/></div> <div>DateOfBirth: <input type="text" value="24.12.1988"/></div> <div>patientSex: <input type="text" value="female"/></div> <div>patientPhoneNumber: <input type="text" value="7270884032"/></div> <div>ShippingAddress: <input type="text" value="5104 Embassy Pristine"/></div> <div>secureFaxNumber: <input type="text"/></div> <div>healthcareProviderSign: <input type="text" value="Yes"/></div> <div>insuranceType: <input type="text" value="Life Cover"/></div> <div>insuranceCarrierName: <input type="text" value="HDFC"/></div> <div>subscriberId: <input type="text" value="97161"/></div> <div>GroupNumber: <input type="text"/></div> <div>PolicyHolderName: <input type="text" value="Swati Kishore"/></div> <div>PolicyHolderDOB: <input type="text"/></div> <div><input type="button" value="Submit Data"/></div>

All Forms	Selected Image	Output Json Data
 <p>Form1G3_aligned.png</p>		<p>QC Status : Incomplete</p> <p>Organisation Name: <input type="text" value="Max Care"/></p> <p>Provider Name: <input type="text" value="Max Insurance"/></p> <p>NPI: <input type="text" value="7215901673"/></p> <p>Location Address: <input type="text" value="151, Bellandur"/></p> <p>City, State, Zip: <input type="text" value="Bangalore"/></p> <p>Phone Number: <input type="text" value="717123452"/></p> <p>Secure Fax Number: <input type="text"/></p> <p>formType: <input type="text" value="Form 1"/></p> <p>ICD-10 Code Other: <input type="text" value="Other(s) 212.13"/></p> <p>Date of Order: <input type="text" value="01.06.2020"/></p> <p>Patient ID/MRN: <input type="text" value="223344"/></p> <p>First Name: <input type="text" value="Raj"/></p> <p>Last Name: <input type="text" value="Aryan"/></p> <p>DOB: <input type="text" value="10.10.20"/></p> <p>Sex: <input type="text" value="Male"/></p> <p>Shipping Address: <input type="text" value="15 1, Bellandur 1st Floor"/></p>

FAQ

- Problem: No output is coming on the black screen.

Solution: Please check that the installation process is properly followed and python3 is correctly installed on the machine.