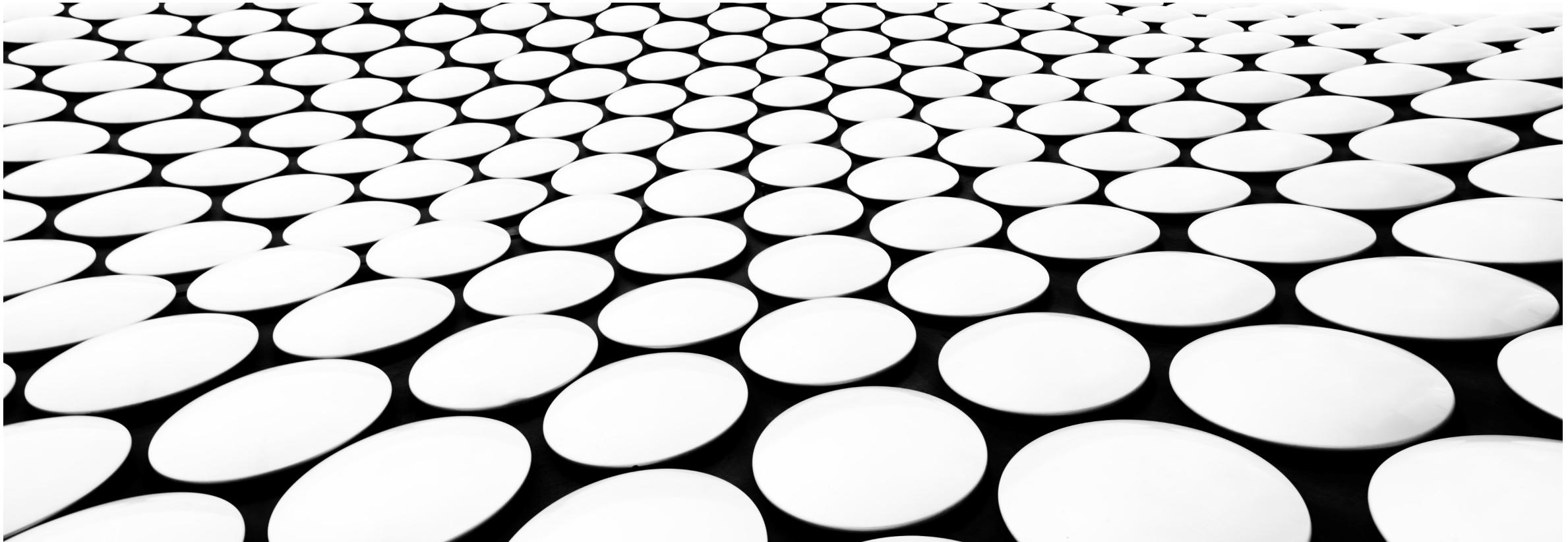
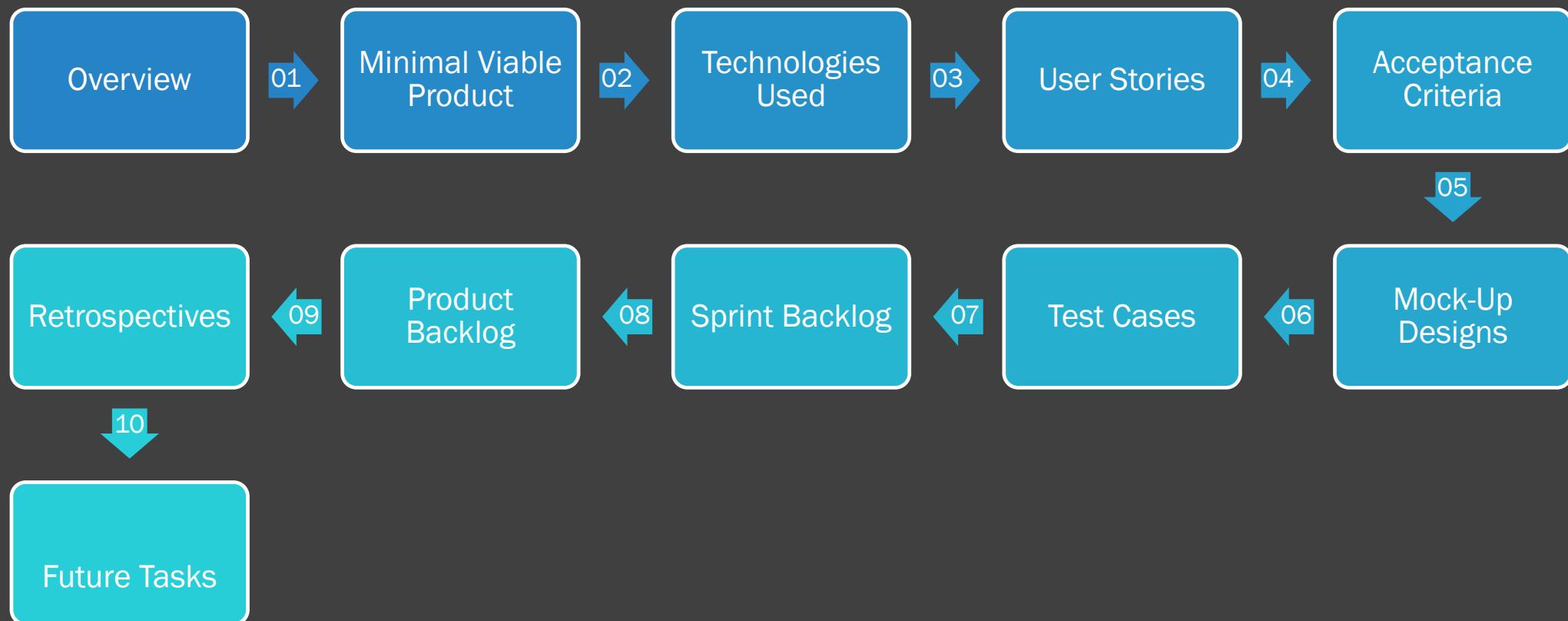

SYM✓

FALL 2020 CAPSTONE PROJECT | PROFESSOR HENRY WONG

ALAN SINGLETON, BRIANA FIGUEROA, JASMINE WASHINGTON, MORGAN FRANKLIN, SAYEMA ISLAM, SWAPNIL KADEKAR



AGENDA





OVERVIEW

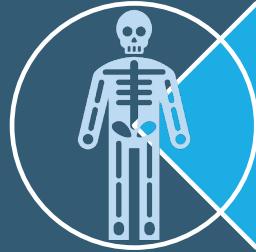
SYMCHECK (SYM✓)



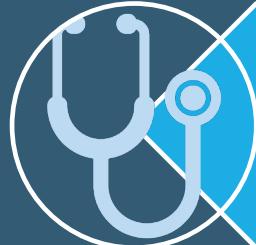
During this challenging time of COVID-19, people around the world don't want to visit public places unless necessary.



According to the CDC, from May 14 to June 21, various hospitals have identified 5,142 coronavirus infections acquired inside hospitals.



Our project is a web application that allows users to self-diagnose themselves by uploading an image of their illness area.



Our application may reduce the traffic inside hospitals by providing diagnoses of mild illnesses.



MINIMAL VIABLE PRODUCT (MVP)

MVP

- Image Recognition of illness
- Percentile Results based on likeliness of illness
- Recommended course of action depending on results
- Quick and easy method for finding the nearest emergency room

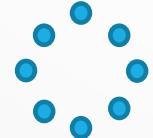
STEP 1

Uploading Image...



STEP 2

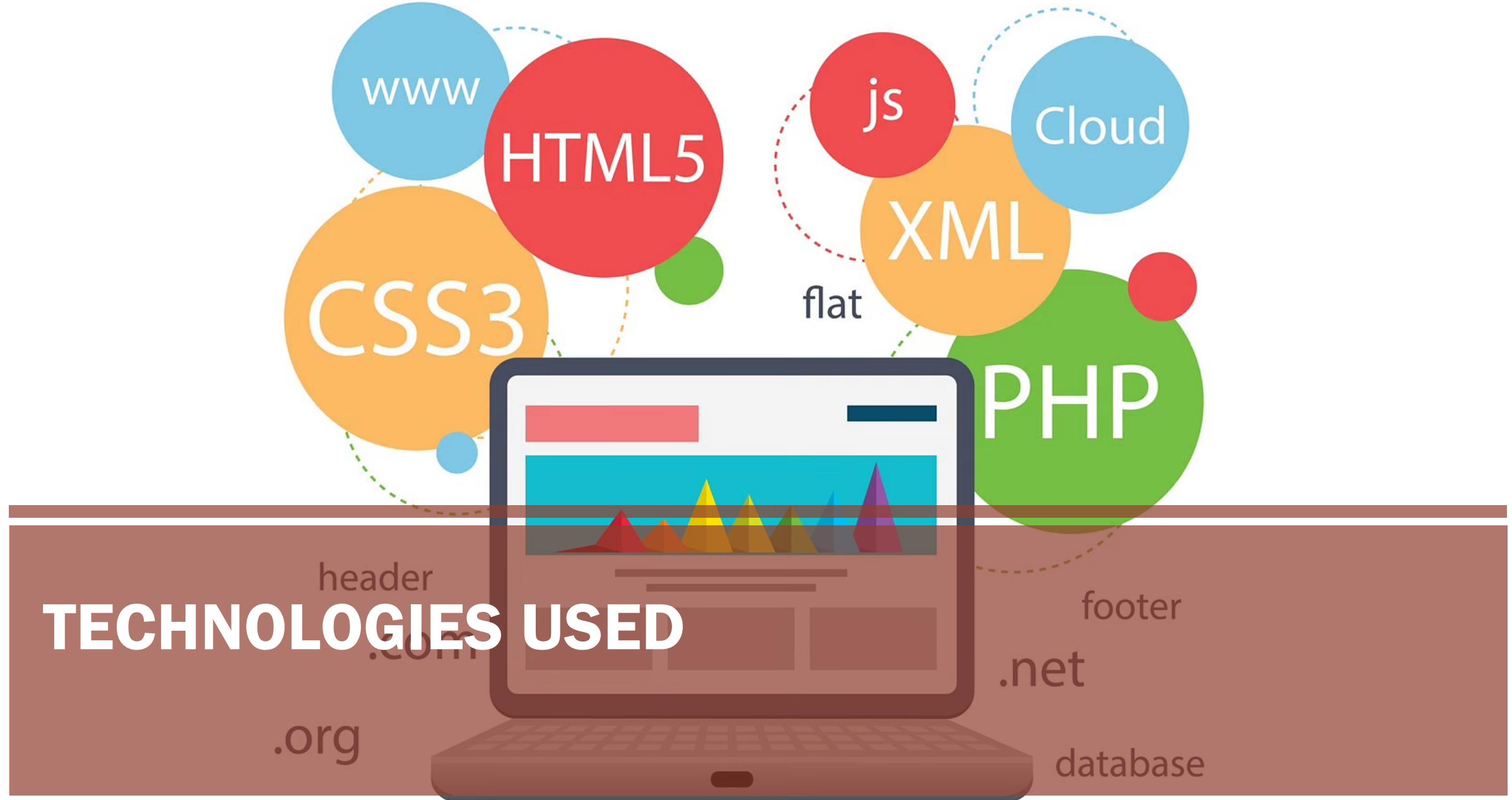
Processing Image...



STEP 3

Image Results!







K Keras



TECHNOLOGIES USED

Python

- TensorFlow
- Keras
- Django (Web Framework)

HTML

CSS

JS

User Stories & Scenarios

ALAN



ID	As a	I want to	so that
US1	user	know that I have reached the correct page to use the SYMCheck application	I can be sure I am uploading my picture to the correct place and receiving the recommendations/care that I desire
US2	user	be diagnosed by the SYMCheck web application	I can gain a cursory understanding of what might be causing my symptoms/what the potential recommendations might be

USER STORIES (HOMEPAGE)

ID	As a	I want to	so that
US3	user	upload a photo/image of my symptom/affected area/illness	the SYMCheck application can diagnose me and I can gain insights as to what I might be afflicted with
US4	user	be sure that my image has been uploaded successfully	I can be sure that the image will be processed by the application so that I can receive recommendations for my care
US5	user	submit my image for assessment	I may receive a[n accurate] determination of my affliction as well as recommendations for care
US6	user	know if I am in a critical condition or in need of immediate medical attention	I am able to seek medical care as soon as possible if there is no time to waste!
US7	user	find the nearest emergency room	I can seek immediate medical attention for what I deem to be an extremely critical/dire/time-sensitive condition
US8	user	return to the homepage	I can re-read the SYMCheck mission statement, disclaimer, etc.

USER STORIES (USER INPUT PAGE)

ID	As a	I want to	so that
US9	user	know what my symptoms indicate/what my affliction might be	I can gain an understanding of what might be causing my symptoms, and thus make an informed decision
US10	user	know what information I can obtain about this/any illness I might potentially have	I can gain an understanding of what might be causing my symptoms, and thus make an informed decision on how best to go forth with my care
US11	user	know whether or not I should see a doctor	I can gauge how much of a PRIORITY a visit to a doctor/medical facility is based on the general nature of my symptoms/illness/affliction
US12	user	find the nearest emergency room	I can receive immediate medical attention if it is deemed necessary
US13	user	receive another diagnosis for another affliction/repeat the diagnosis for this one	so that I can upload another photo/set of symptoms for a different or the same illness (i.e. for confirmation of the latter)
US14	user	navigate back to the home page	to manually start over, or to read SYMCheck's mission statement
US15	user	be aware of the quality/accuracy of the results given relative to those from a medical facility/medical professional	I do not forget that all results are simply cursory recommendations based on past data
US16	user	get in touch with the creators of the SYMCheck application	I can provide the creators of the SYMCheck application with suggestions/comments, ask them questions, commend them for their product, etc.

USER STORIES (RESULTS PAGE)

Acceptance criteria



ID	Acceptance Criteria
US1	<ul style="list-style-type: none"> a) The index or home page of the SYMCheck web should clearly display the SYMCheck logo b) The page should clearly display a welcome message that describes what the application does, and how this is achieved (i.e. what technologies are used) c) The page should display a disclaimer so the user is made aware of the quality/accuracy of our website when used in lieu of formal healthcare (i.e. it should not be)
US2	<ul style="list-style-type: none"> a) Given that the user is on the homepage, there should be a button that says "Diagnose me now", "Get Diagnosed", or something of that nature that will take the user to the image/symptom/info input page

CRITERIA FOR HOMEPAGE

ID	Acceptance Criteria
US3	<ul style="list-style-type: none"> a) Given that the user is now on the user input/image upload page, the page should display a field where the user can upload an image to be analyzed/classified by the SYMCheck application b) The page should provide information on acceptable image formats, file sizes, etc. c) The upload field should indicate that an image can be dragged-and-dropped into the image field, or uploaded via browsing of the user's local machine by simply clicking on said field
US4	<ul style="list-style-type: none"> a) After the successful upload of an image to the webpage, the user should see the name of the submitted file, a preview of the image submitted, or even simply a message stating "upload successful"
US5	<ul style="list-style-type: none"> a) Webpage should display a "Submit" button to be clicked after an image has been uploaded b) Should an image NOT have been uploaded, maybe the submit button should be grayed out/unclickable. Or simply, display a message stating "Please upload an image of your illness/affected area" or "Please check that the image you have uploaded meets the specified requirements"

CRITERIA FOR INPUT PAGE

ID	Acceptance Criteria
US6	<ul style="list-style-type: none"> a) The webpage should display a set of symptoms that generally indicate a critical or dire condition (i.e. STAT), under which should be displayed a button to find the nearest emergency room/ER
US7	<ul style="list-style-type: none"> a) Given that the user is on the user input page, there should be a button underneath a short list of potential alarming symptoms, that says "FIND THE NEAREST EMERGENCY ROOM," which, when clicked, will redirect the user to Google Maps or some other map application that will find the hospitals nearest the user's indicated location
US8	<ul style="list-style-type: none"> a) The webpage should display a button that says "HOME" that will redirect the user to the index/home page when clicked

CRITERIA FOR INPUT PAGE (CONT.)

ID	Acceptance Criteria
US9	a) The results page should display the results of the image assessment in percentages of what illness(es) the user may have, with a predetermined cutoff for which percentages should be displayed (i.e. only illnesses with a 70% or higher match will be displayed)
US10	a) The results page should contain a field that displays all known information (i.e. stats, severity, home remedies, etc.) about the illness/affliction that shows the highest match
US11	a) The results page should contain a SEPARATE field that indicates under what conditions the user should indubitably see a doctor (i.e. age, state of pregnancy, etc.)
US12	a) Given that the user is on the results page, there should be a button underneath all the result fields displayed that says "FIND THE NEAREST EMERGENCY ROOM," which when clicked, will redirect the user to Google Maps or some other map application that will find the hospitals nearest the user's indicated location

CRITERIA FOR RESULTS PAGE

ID	Acceptance Criteria
US13	<p>a) The results page should display a button that says "START A NEW DIAGNOSIS" or "NEW DIAGNOSIS" which essentially resets the kernel-refreshes the webpage and removes all data pertaining to the current diagnosis</p> <ul style="list-style-type: none"> This button should take the user back to the image upload page. Please note that this new diagnosis will be INDEPENDENT of any and all diagnoses completed before it
US14	<p>a) The results page should display a button that says "HOME" like all the other pages in the SYMCheck application, which the user can click to return to the index/home page of said application</p>
US15	<p>a) The results page should definitely display the disclaimer again at the very bottom of the page to remind the user that no matter how accurate the SYMCheck application may turn out to be, the application is, in itself, in no way a replacement for physical medical diagnoses/care</p>
US16	<p>a) There should be a separate field that allows the user to send a comment/concern to the creators of the SYMCheck application by email</p> <p>b) The feedback field should display some guidance message such as "If you would like share your thoughts on our application, click [here] to send an email to our team. We will get back to you within 24 hours during business days. Thank you!"</p> <ul style="list-style-type: none"> Clicking the "here" hyperlink will open up an email window, with the message to be preset to be sent to the creators of the SYMCheck site

CRITERIA FOR RESULTS PAGE (CONT.)

MOCK-UP DESIGNS

Homepage



Welcome to SymCheck, an online image diagnosis application that will help you identify what illness you may have. Our site and algorithm, made with Django and tensorflow, has an accuracy of over XX% and can help you make an informed decision on if or when you may need a medical professional.

[Get Diagnosed Now >](#)

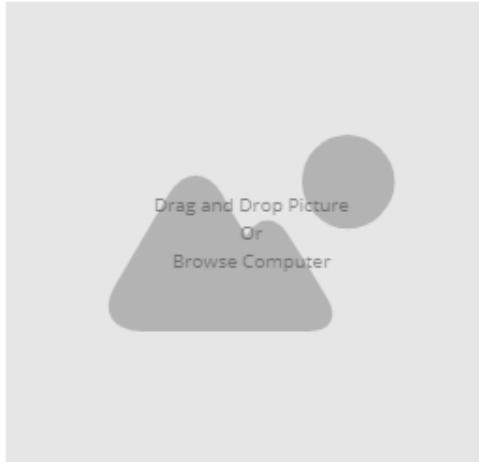
*This application is not run nor affiliated with any hospitals, urgent care, or doctors offices for official consultation contact your local physician or hospital.

UPLOAD PAGE



** IF YOU ARE HAVING TROUBLE BREATHING, HAVE CHEST PAINS, OR SERIOUS
BLEEDING, PLEASE HEAD TO THE NEAREST EMERGENCY ROOM.

FIND NEAREST
EMERGENCY ROOM



Images must be in .xxx format.
Please be sure to capture the illness area as close as
possible.
Do not add any filters to the image.

HOME

SUBMIT

RESULTS PAGE

SYM✓

[HOME](#)[NEW DIAGNOSIS](#)

Result

Based on the submission you provided, the image indicates you may have [illness] with a confidence of [x%]... etc

About

Information about the illness
[Illness name] is a disease of the [skin or eyes]...etc

When to see a Doctor

Call a healthcare provider if:

- You never received a vaccine
- Symptoms worsen within 24hrs
- Etc...

Nearby Healthcare Facilities

If you would like to find healthcare facilities near you, please click on the button "Find Nearest Emergency Room"

[FIND NEAREST
EMERGENCY ROOM](#)

Feedback

Contact us at <link>here</link> to send us an email.



TEST CASES (MORGAN)

TEST CASES

Test Case For	ID	Test Cases	Test Data	Expected Results
Homepage	1	Browse the Website		User should be able to access the homepage of the website
	2	Locate the Get Diagnosed Link		User should be able to locate the link to access the upload page

TEST CASES CONTINUED...

Test Case For	ID	Test Cases	Test Data	Expected Results
User Input Page	1	Locate the Submit Photo Link		User should be able to locate the link to submit photo
	2	Choose file shows up		User should see choose file option, to upload photo to website
	3	Drag and Drop feature		User can drag and drop the photo in the box for uploading
	4	Ability to cancel uploading file		User should be able to cancel the file from being uploaded
	5	Verify file is uploaded		User should not be able to click on the submit button without submitting a file
	6	Verify file is correct		User should be promoted to verify uploaded file is correct
	7	Submit to website for analysis		User should be able to click submit to send correct photo to be analyzed
	8	Locate the Nearest ER Link		User should be able to locate and click the Nearest ER link to access an interactive map
	9	Return to Homepage Link		User should be able to return to the homepage when clicking the Home button
Image functionality	1	Check for image file extension		User can only upload certain types of file extensions (Verify if incorrect)
	2	Check for size of the image file		If file is too large to upload, the user must be notified
	3	Check for height and width		Image should be measuring a certain height

TEST CASES CONTINUED...

Test Case For	ID	Test Cases	Test Data	Expected Results
Results	1	Results appear after analysis complete		User will see percentage that they have the illness
	2	About the disease		User will see facts about the disease they have been diagnosed with
	3	When to see a Doctor		User will see when it is best advised to see a doctor
	4	Nearest ER		If selected, user will be able to access an interactive map
	5	New Diagnosis Link		User should be able to access the user input page for a new diagnosis
	6	Return to Homepage Link		User should be able to return to the homepage when clicking the Home button
	7	Error Message		User should see an error message if there is any issue with their uploaded image.
Feedback	1	Send user feedback		User can click button to send feedback about application
	2	Fill out feedback		User will be prompted to type their feedback about the application
	3	Submit Feedback		User can submit feedback and will have a response within 24 hours

SPRINT BACKLOG

T	Key	Summary	Assignee	P	D	Status	Created	Updated
<input checked="" type="checkbox"/>	HID-13	Create mock-up web designs	Briana Figueroa			DONE	20/Sep/20	30/Sep/20
<input checked="" type="checkbox"/>	HID-10	Research Django Framework	Briana Figueroa			DONE	20/Sep/20	30/Sep/20
<input checked="" type="checkbox"/>	HID-12	Complete Deliverable 2 PowerPoint Presentation	Jasmine Washington			DONE	20/Sep/20	30/Sep/20
<input checked="" type="checkbox"/>	HID-8	Complete User Stories	Alan Singleton			DONE	20/Sep/20	30/Sep/20
<input checked="" type="checkbox"/>	HID-9	Complete Test Cases	Morgan Franklin			DONE	20/Sep/20	30/Sep/20
<input checked="" type="checkbox"/>	HID-11	Complete Acceptance Criteria	Sayema Islam			DONE	20/Sep/20	29/Sep/20
<input checked="" type="checkbox"/>	HID-4	Research and find images of chicken pox and pink eye	Briana Figueroa			DONE	14/Sep/20	30/Sep/20
	HID-25	HID-13 / Vote on Designs	<i>Unassigned</i>			DONE	26/Sep/20	30/Sep/20

SPRINT 2 BACKLOG

BACKLOG

PRODUCT BACKLOG

Backlog

Share ...



Only My Issues

Recently Updated

VERSIONS



EPICS

As a user, I want to know that I have reached the correct page to use the SYMCheck application so that I can be sure I am uploading my picture to the correct place and receiving the recommended	SymCheck	BF	HID-29		
As a user, I want to be diagnosed by the SYMCheck web application so that I can gain a cursory understanding of what might be causing my symptoms/what the potential recommendations might	SymCheck	BF	HID-30		
As a user, I want to upload a photo/image of my symptom/affected area/illness so that the SYMCheck application can diagnose me and I can gain insights as to what I might be afflicted with	SymCheck	HID-31			
As a user, I want to be sure that my image has been uploaded successfully so that I can be sure that the image will be processed by the application so that I can receive recommendations for my care	SymCheck	HID-32			
As a user, I want to submit my image for assessment so that I may receive a[n accurate] determination of my affliction as well as reccomendations for care	SymCheck	HID-33			
As a user, I want to know if I am in a critical condition or in need of immediate medical attention so that I am able to seek medical care as soon as possible if there is no time to waste!	SymCheck	HID-34			
As a user, I want to find the nearest emergency room so that I can seek immediate medical condition for what I deem to be an extremely critical/dire/time-sensitive condition	SymCheck	HID-35			
As a user, I want to return to the homepage so that I can re-read the SYMCheck mission statement, disclaimer, etc.	SymCheck	HID-36			
As a user, I want to know what my symptoms indicate/what my affliction might be so that I can gain an understanding of what might be causing my symptoms, and thus make an informed decision	SymCheck	HID-37			
As a user, I want to know what information I can obtain about this/any illness I might potentially have so that I can gain an understanding of what might be causing my symptoms, and thus make an info	SymCheck	HID-38			
As a user, I want to know whether or not I should see a doctor so that I can gauge how much of a PRIORITY a visit to a doctor/medical facility is based on the general nature of my symptoms/illness/afflic	SymCheck	HID-39			
As a user, I want to find the nearest emergency room so that I can receive immediate medical attention if it is deemed necessary	SymCheck	HID-40			
As a user, I want to receive another diagnosis for another affliction/repeat the diagnosis for this one so that so that I can upload another photo/set of symptoms for a different or the same illness (i.e. for	SymCheck	HID-41			
As a user, I want to navigate back to the home page so that to manually start over, or to read SYMCheck's mission statement	SymCheck	HID-42			
As a user, I want to be aware of the quality/accuracy of the results given relative to those from a medical facility/medical professional so that I do not forget that all results are simply cursory recommend	SymCheck	HID-43			

Story Artifacts

Backlog

<input checked="" type="checkbox"/> Develop Image Classification ML Algorithm	SymCheck	SK	HID-16	↑	1w
<input checked="" type="checkbox"/> Develop Home page	SymCheck	BF	HID-22	↑	2d
<input checked="" type="checkbox"/> Create Google API Account	SymCheck	AS	HID-28	↑	-
<input checked="" type="checkbox"/> Research Database options (AWS3)	SymCheck	SI	HID-27	↑	-
<input checked="" type="checkbox"/> Develop illness result page	SymCheck	AS	HID-24	↑	-
<input checked="" type="checkbox"/> Develop illness prediction image upload page	SymCheck	AS	HID-23	↑	-
<input checked="" type="checkbox"/> Complete IEEE style technical paper (Deliverable 3)	SymCheck	SI	HID-17	↑	-
<input checked="" type="checkbox"/> Upload ML algorithm code onto GitHub repo	SymCheck	SK	HID-7	↑	30m
<input checked="" type="checkbox"/> Create a video showing our MVP demo	SymCheck	MF	HID-21	↑	-
<input checked="" type="checkbox"/> Create Deliverable 4 PowerPoint Presentation			HID-50	↑	-

Task Artifacts



RETROSPECTIVES

TOP VOTED RESULTS

What went well

- Tracking all progress on Jira/Confluence and looking over each other's work.

What needs improvement

- Follow through on final decisions made about features to the application.

Next Steps

- During our weekly meetings, we go around and have each member of the team give a quick summary of what they've been working on/what they expect to be working on.

FUTURE TASKS

<input checked="" type="checkbox"/> Develop Home page	SymCheck	BF	HID-22	↑	2d
<input checked="" type="checkbox"/> Develop illness result page	SymCheck	AS	HID-24	↑	-
<input checked="" type="checkbox"/> Develop illness prediction image upload page	SymCheck	AS	HID-23	↑	-
<input checked="" type="checkbox"/> Complete IEEE style technical paper (Deliverable 3)	SymCheck	SI	HID-17	↑	-
<input checked="" type="checkbox"/> Create Google API Account	SymCheck	AS	HID-28	↑	-
<input checked="" type="checkbox"/> As a user, I want to know that I have reached the correct page to use the SYMCheck application so that I can be sure I am uploading	SymCheck	BF	HID-29	↑	-
<input checked="" type="checkbox"/> As a user, I want to be diagnosed by the SYMCheck web application so that I can gain a cursory understanding of what might be causing my symptoms	SymCheck	BF	HID-30	↑	-
<input checked="" type="checkbox"/> As a user, I want to upload a photo/image of my symptom/affected area/illness so that the SYMCheck application can diagnose me and I	SymCheck		HID-31	↑	-
<input checked="" type="checkbox"/> As a user, I want to be sure that my image has been uploaded successfully so that I can be sure that the image will be processed by the application	SymCheck		HID-32	↑	-
<input checked="" type="checkbox"/> As a user, I want to find the nearest emergency room so that I can seek immediate medical condition for what I deem to be an extremely serious symptom	SymCheck		HID-35	↑	-
<input checked="" type="checkbox"/> As a user, I want to return to the homepage so that I can re-read the SYMCheck mission statement, disclaimer, etc.	SymCheck		HID-36	↑	-
<input checked="" type="checkbox"/> As a user, I want to navigate back to the home page so that to manually start over, or to read SYMCheck's mission statement	SymCheck		HID-42	↑	-
<input checked="" type="checkbox"/> As a user, I want to find the nearest emergency room so that I can receive immediate medical attention if it is deemed necessary	SymCheck		HID-40	↑	-
<input checked="" type="checkbox"/> As a user, I want to get in touch with the creators of the SYMCheck application so that I can provide the creators of the SYMCheck application with feedback	SymCheck		HID-44	↑	-

SPRINT 3 TO DO LIST (10/4 - 10/26)

END

Sources

<https://www.wsj.com/articles/hospitals-treat-covid-19-they-spread-it-too-11594046342>

GitHub Link

<https://github.com/jazzymaya/hidden-agility/wiki>