Project Report

# VirtualEye - Life Guard for Swimming Pools to Detect Active Drowning

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## CODING & SOLUTIONING

**(Explain the features added in the project along with code)**

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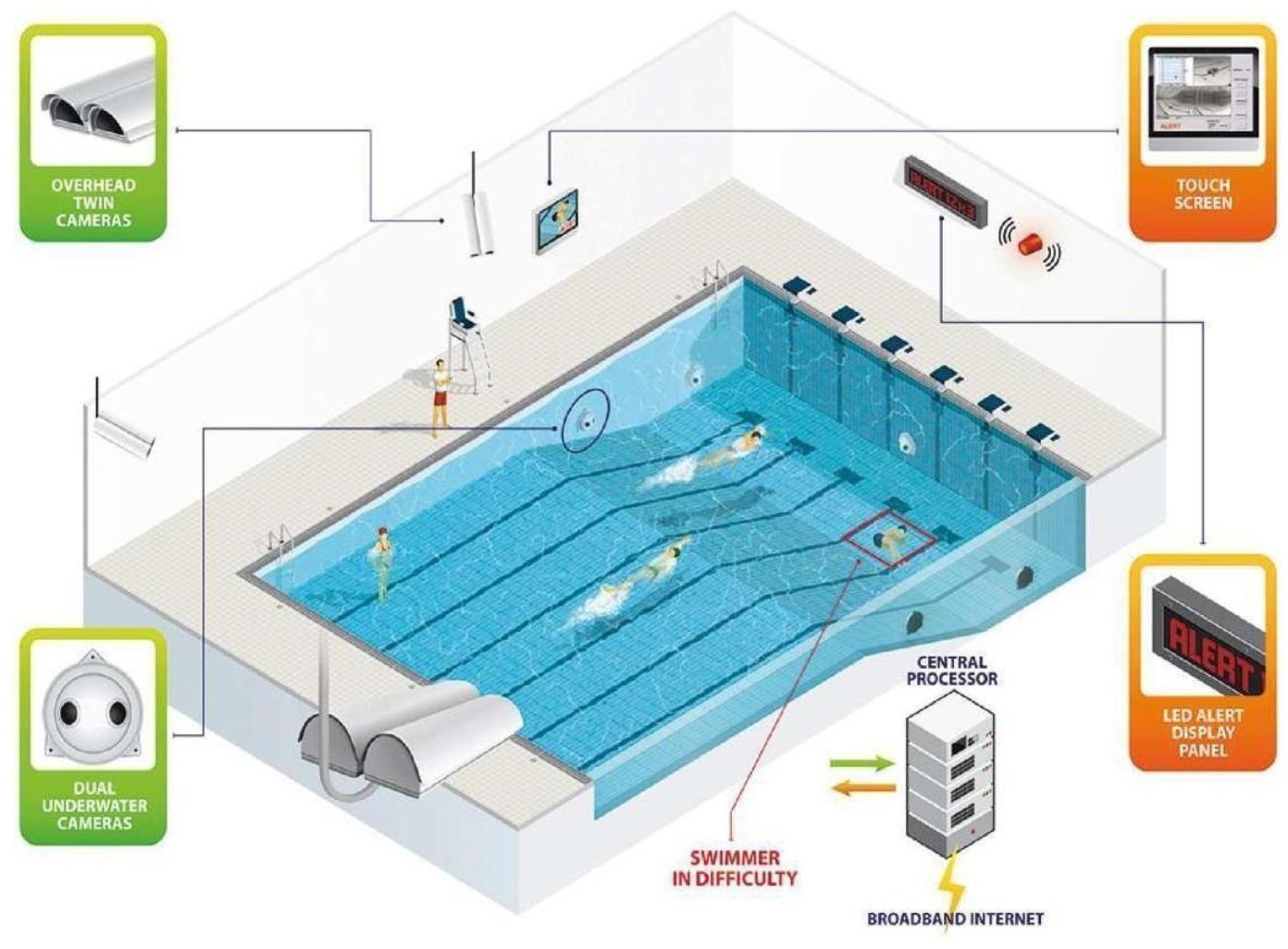
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# INTRODUCTION

Recently, there has been growing interest around the topic of drowning detection systems (DDS) in the sport and leisure industry both across the UK and globally. Advancements in technology, coupled with the importance of pool safety, has led to its growing prominence, with mention of DDS now in documents such as HSG179 - the latest UK standards document for health and safety in swimming pools (Health and Safety Executive, 2018). However, the topic is a debated area for various reasons explored in this review.Whilst there are plenty of academic articles dedicated to the technology and design behind these products in the fields of biometrics, computer science and electronic engineering, there is limited academic research investigating their application to real-world scenarios. Furthermore, there is uncertainty around their use alongside traditional lifeguarding; whether international testing standards (ISO standards) are robust enough; and general risks affecting the effectiveness of these products. This includes factors such as water clarity, high pool occupancy, lighting, glare and attractions such as water slides and wave machines. These concerns alongside the lack of research and high installation costs have resulted in a reluctance by some operators to incorporate DDS into their pools. This signifies the importance of independent research into DDS. intends to support the move towards the shared goal of improved pool safety.

## Project Overview

Swimming pools are found larger in number in hotels, and weekend tourist spots and barely people have them in their house backyard. Beginners, especially, often feel it difficult to breathe underwater which causes breathing trouble which in turn causes a drowning accident. By studying body movement patterns and connecting cameras to artificial intelligence (AI) systems we can devise an underwater pool safety system that reduces the risk of drowning. Usually, such systems can be developed by installing more than 16 cameras underwater and ceiling and analyzing the video feeds to detect any anomalies.



## Purpose

It helps the lifeguard to detect the underwater situation where they can't easily observe.

* Establish and outline what is known on Drowning Detection Systems.
* Evaluate the current literature on Drowning Detection Systems, including their use in indoor pool environments along with interaction with traditional lifeguarding.
* Better understand where DDS are positioned in the health and safety landscape of indoor swimming pools.

# LITERATURE SURVEY

## Existing problem

Whilst literature on DDS mostly agrees on areas such as the risks and issues associated with DDS performance, there are other areas where sources offer differing points of view, for example, DDS and their co- existence with lifeguards. There is debate around whether DDS can be helpful or harmful towards lifeguarding practices and how DDS may change the landscape of traditional lifeguarding, as well as some disagreement on whether they serve as justification for reducing lifeguard numbers. The term 'blended lifeguarding' or 'modern lifeguarding' has been newly coined to describe the concept of traditional lifeguarding practices being blended with technology for drowning detection (Swimming Pool Scene, 2017).Currently, there is little qualitative or quantitative research analysing the experiences of lifeguards themselves relating to this concept.

## References

<https://www.angeleye.tech/us/us-lifeguard/> <https://swimeye.com/> <https://www.thewirh.com/blog/dds-how-do-they-work>

## Problem Statement Definition



# IDEATION & PROPOSED SOLUTION

## Empathy Map Canvas

## Ideation & Brainstorming

## 

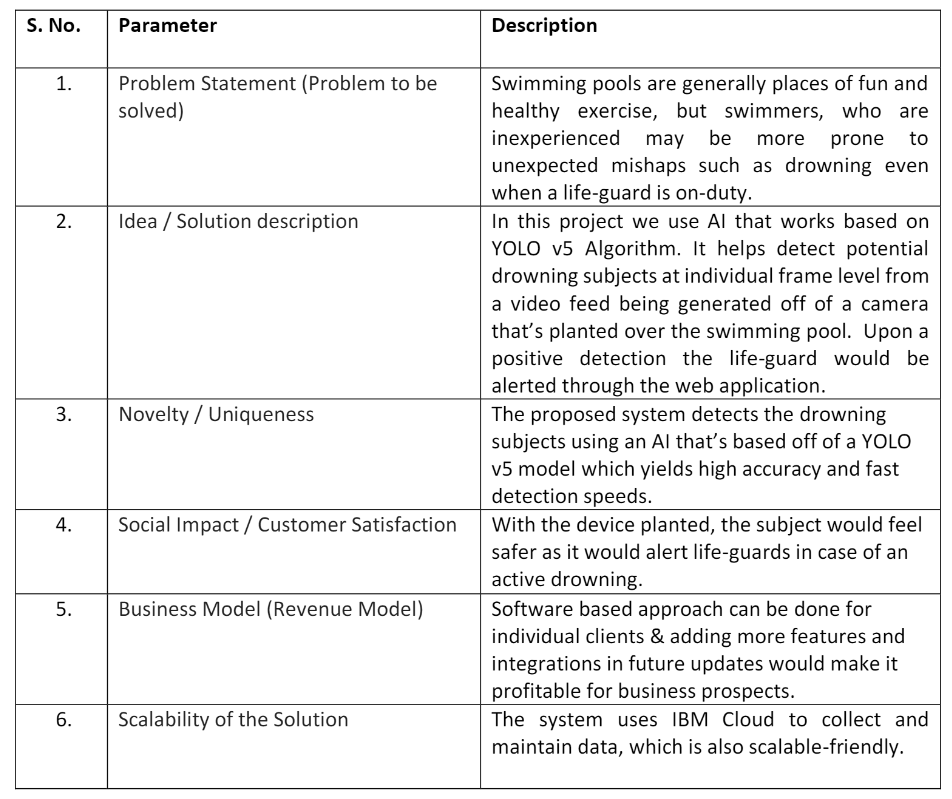
## 

## 

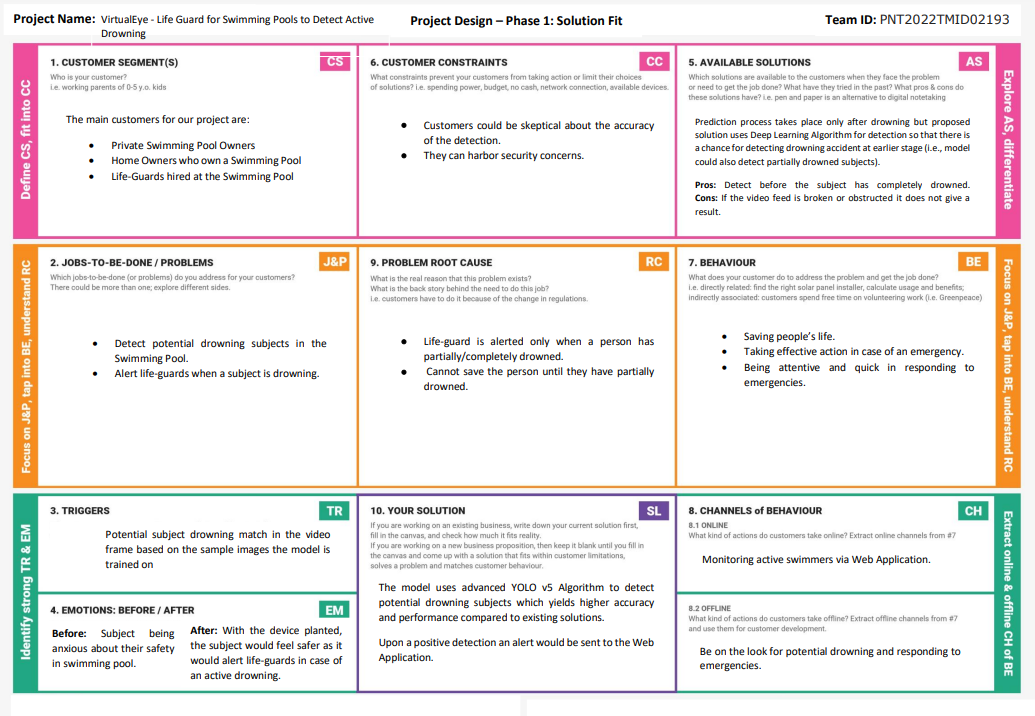
## 

## 

## Proposed Solution

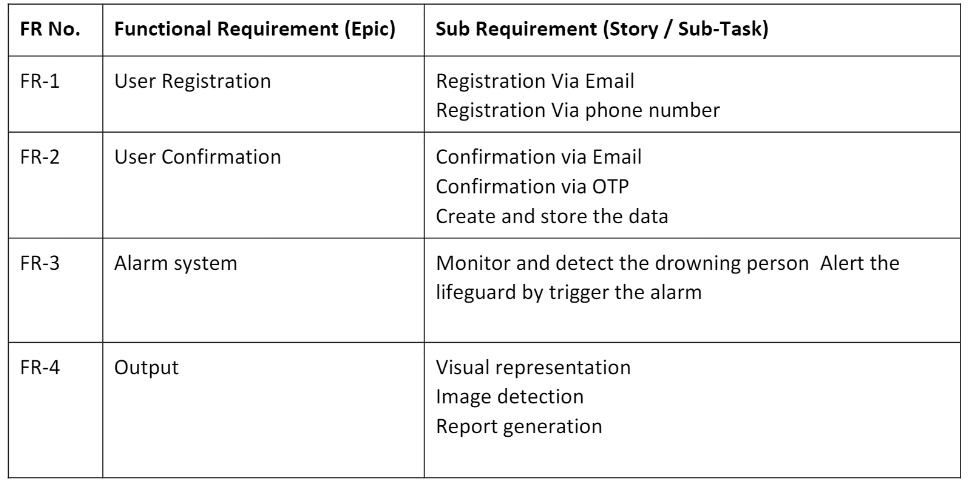
****

## Problem Solution fit

****

# REQUIREMENT ANALYSIS

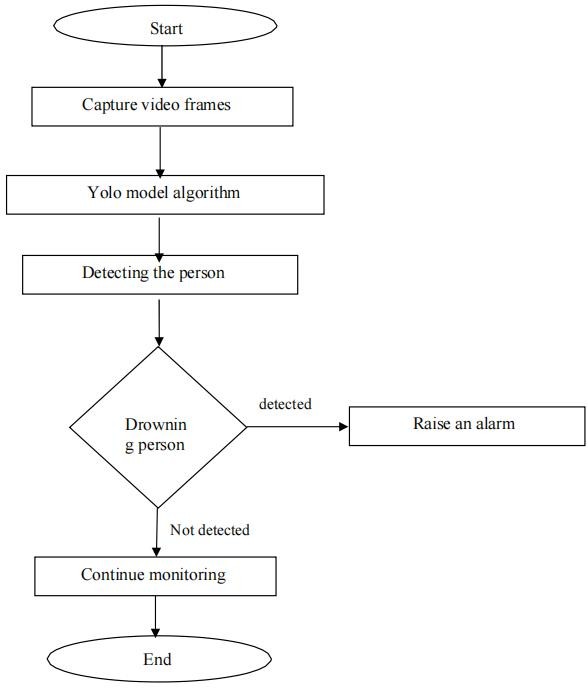
## Functional requirement



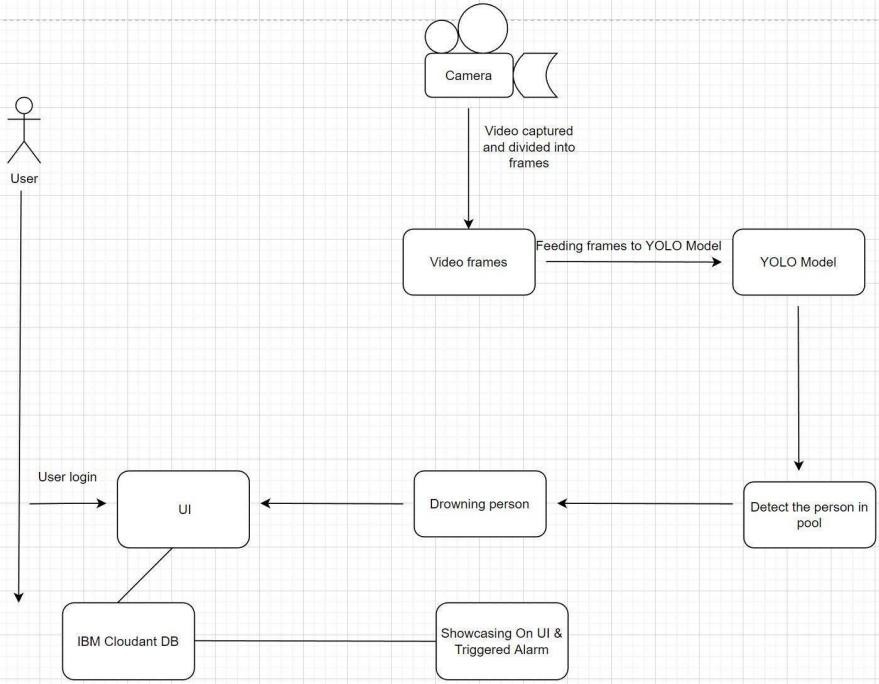
## Non-Functional requirements

# PROJECT DESIGN

## Data Flow Diagrams



## Solution & Technical Architecture



## User Stories

## 

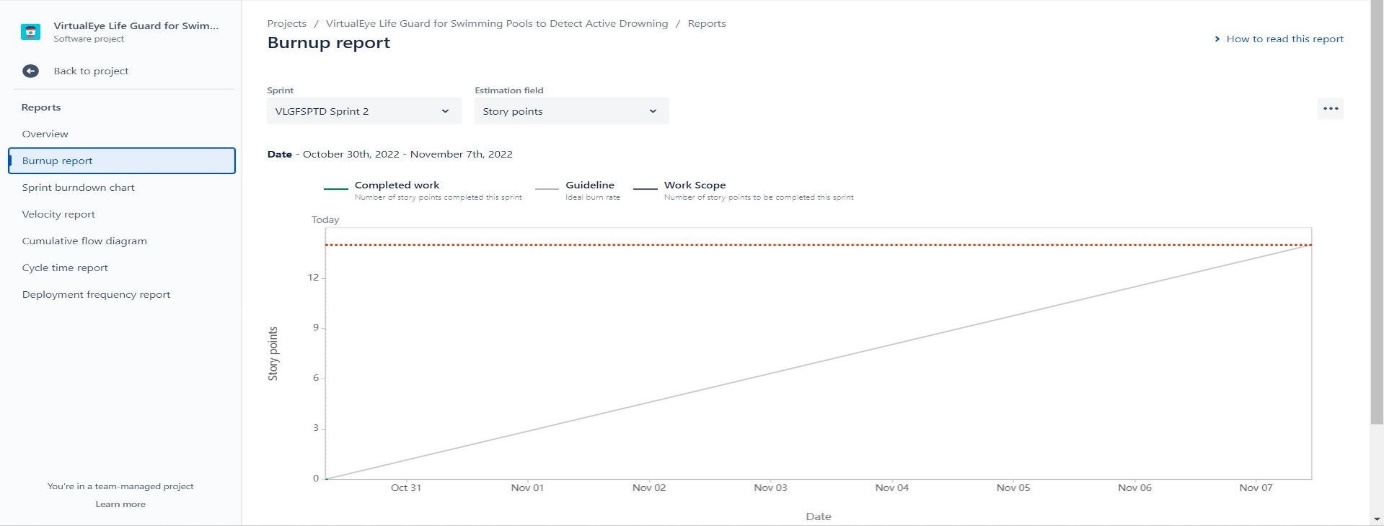
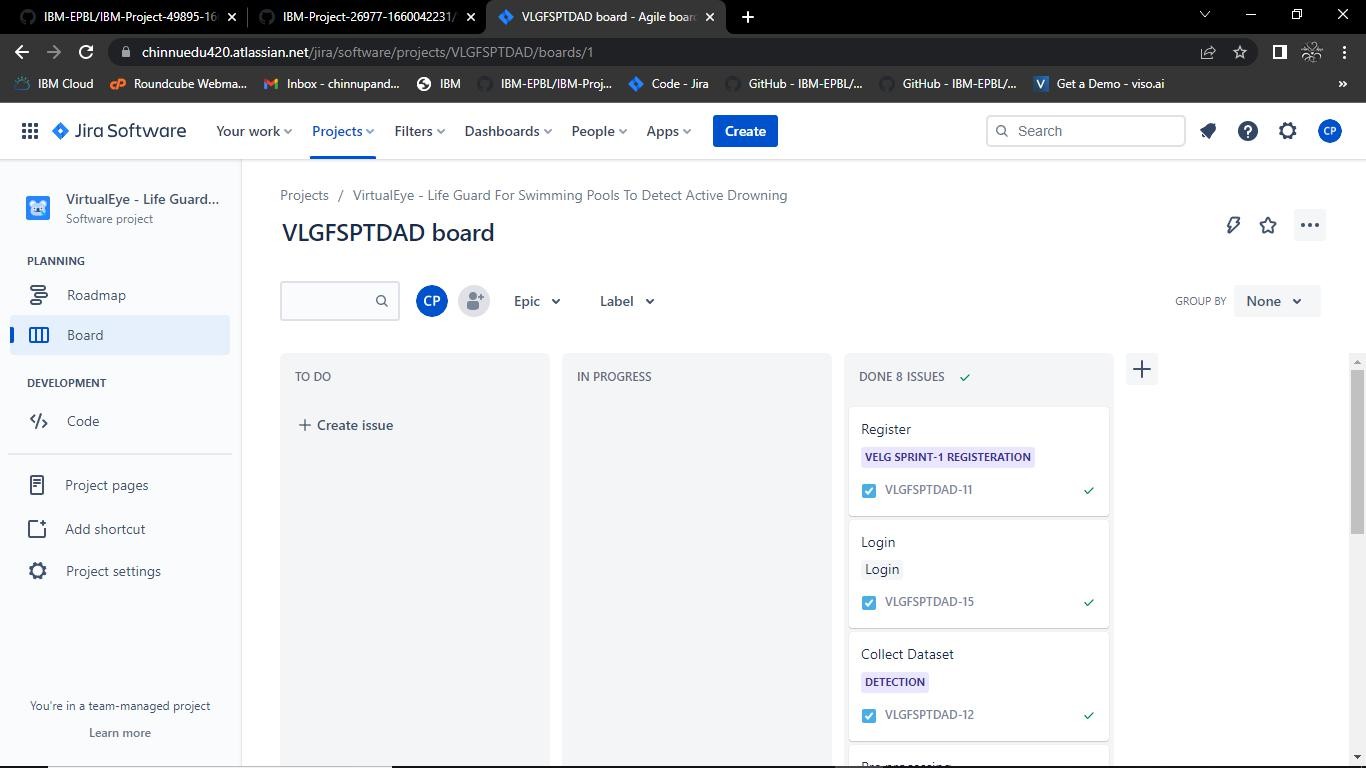
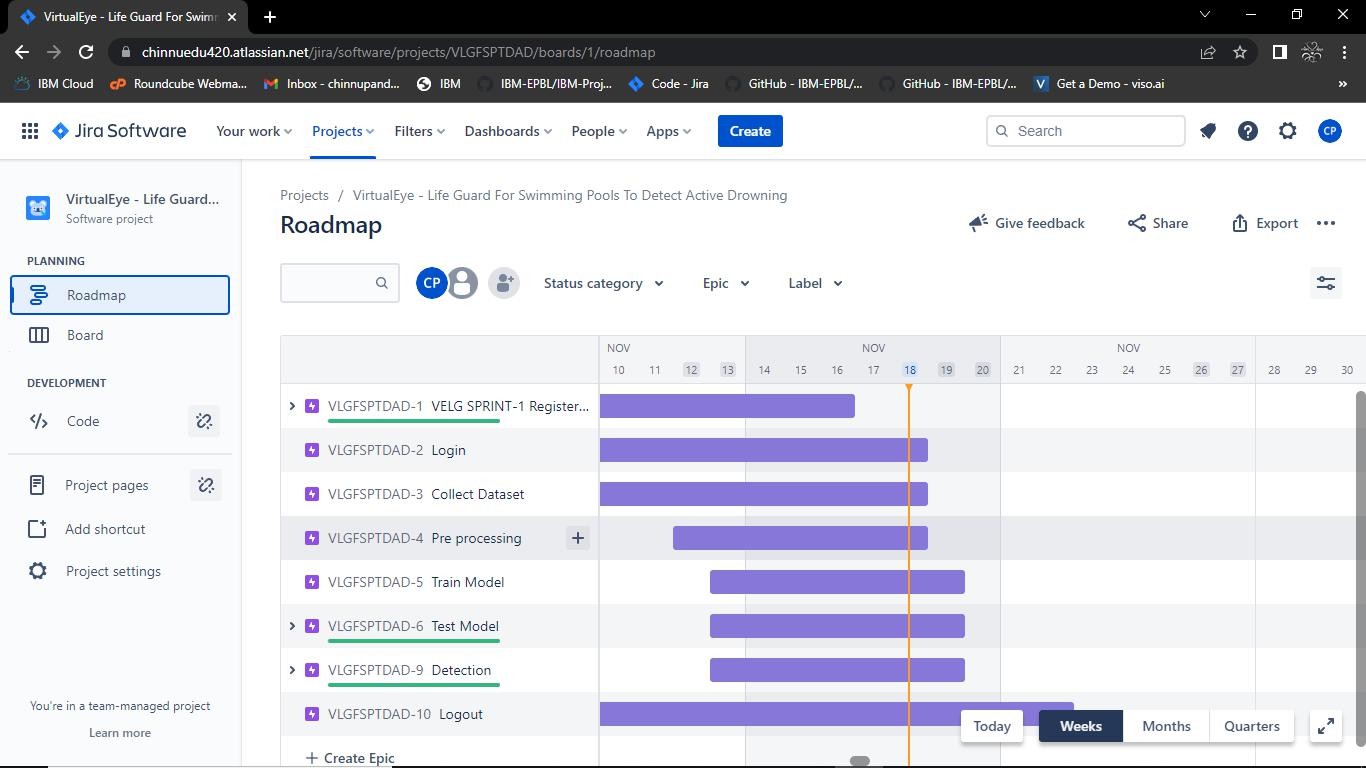
## 

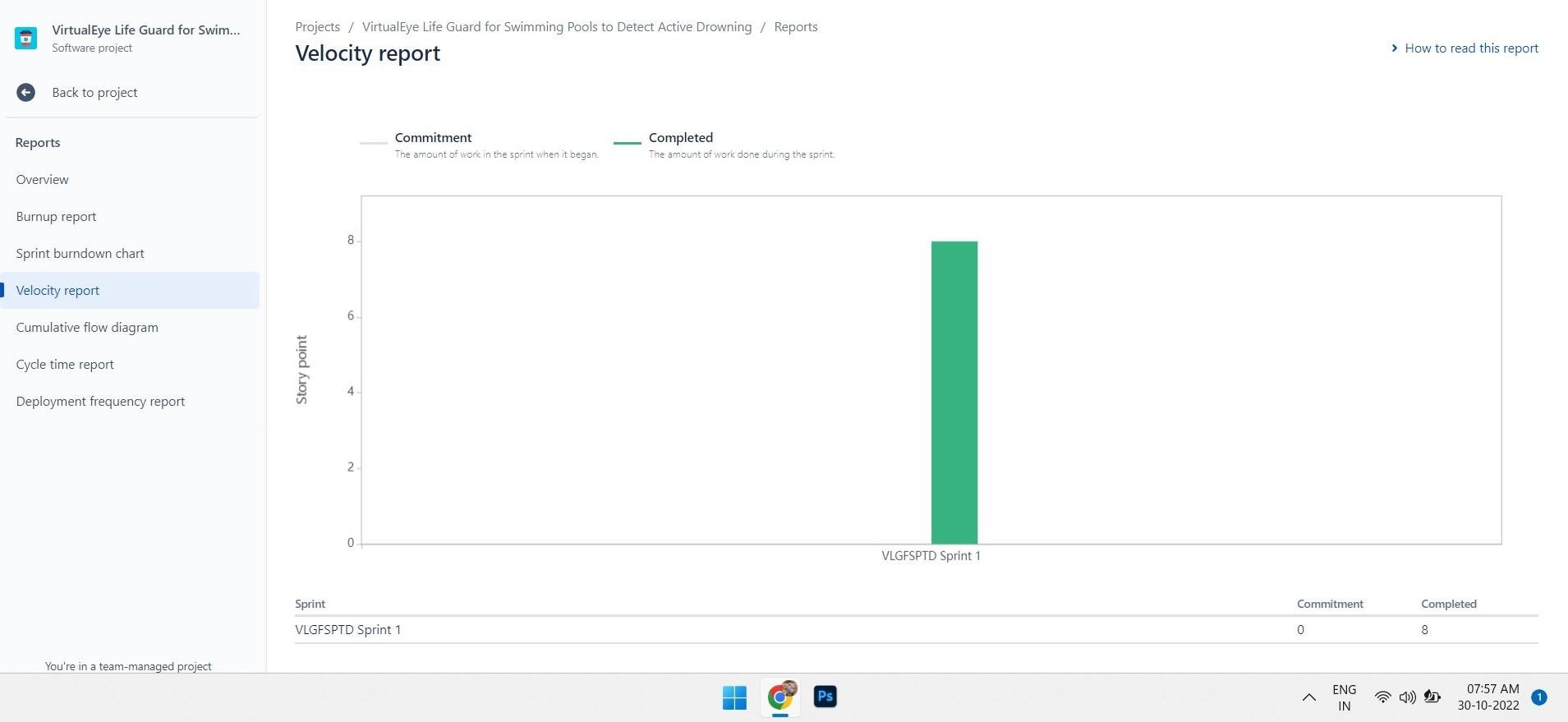
# PROJECT PLANNING & SCHEDULING

## Sprint Planning & Estimation



* 1. **Reports from JIRA**





# CODING & SOLUTIONING

## Feature 1

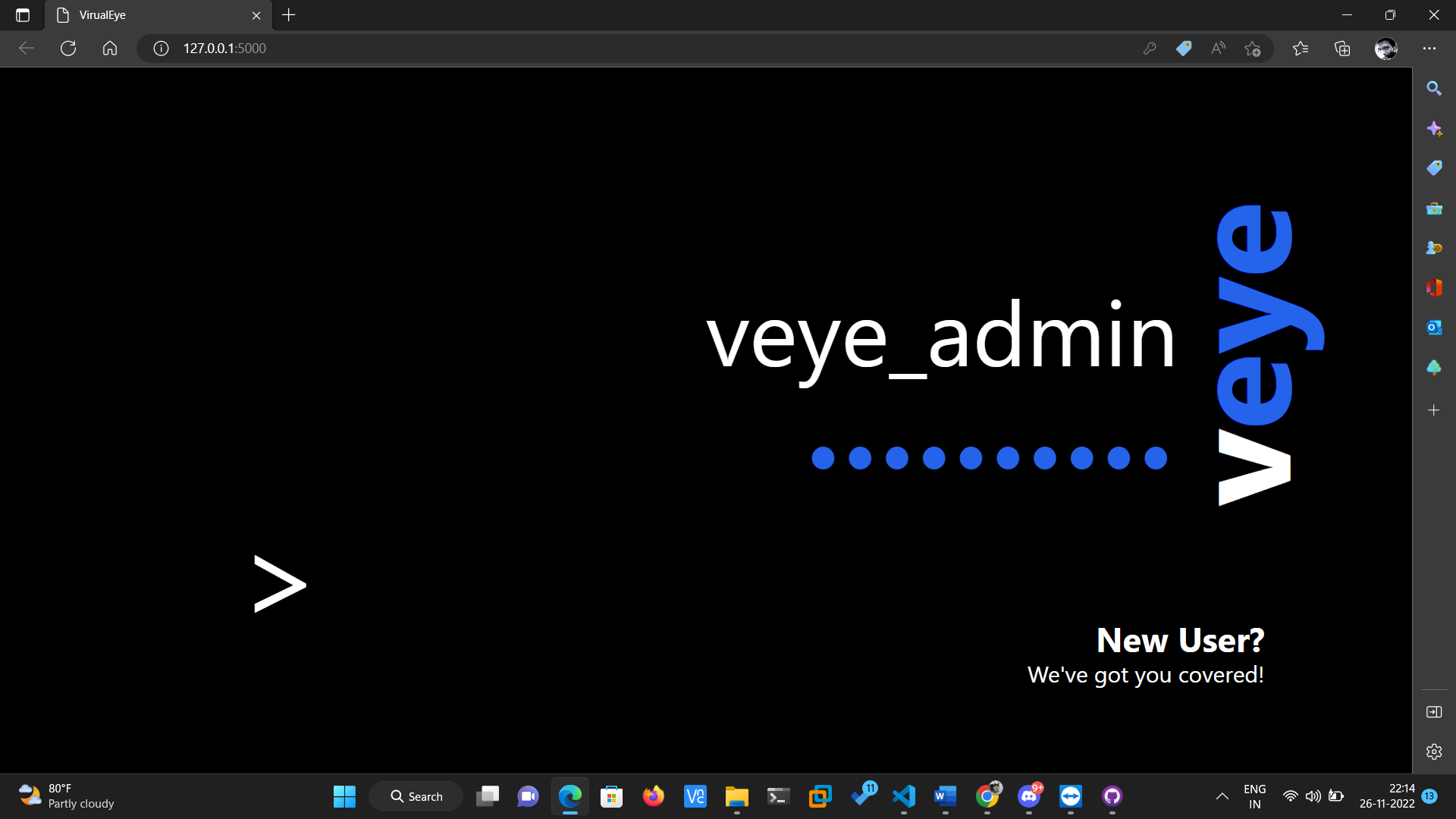
Humans have always had the innate ability to recognize and distinguish between faces. Now computers are able to do the same. This opens up tons of applications. Face detection and recognition is a heavily researched topic and there are tons of resources online. We have tried multiple open source to find the ones that are simplest to implement while being accurate. We have also created a pipeline for detection, recognition and emotion understanding on any input image with just 8 lines of code after the images have been loaded!

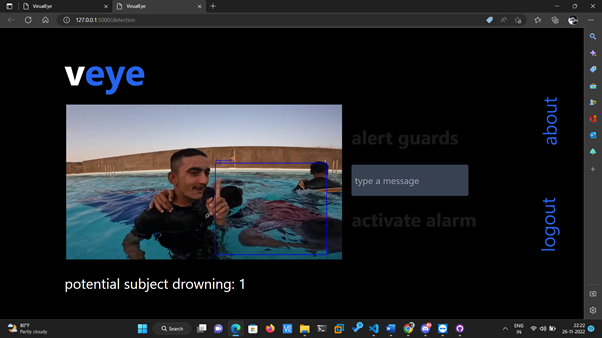
## Feature 2

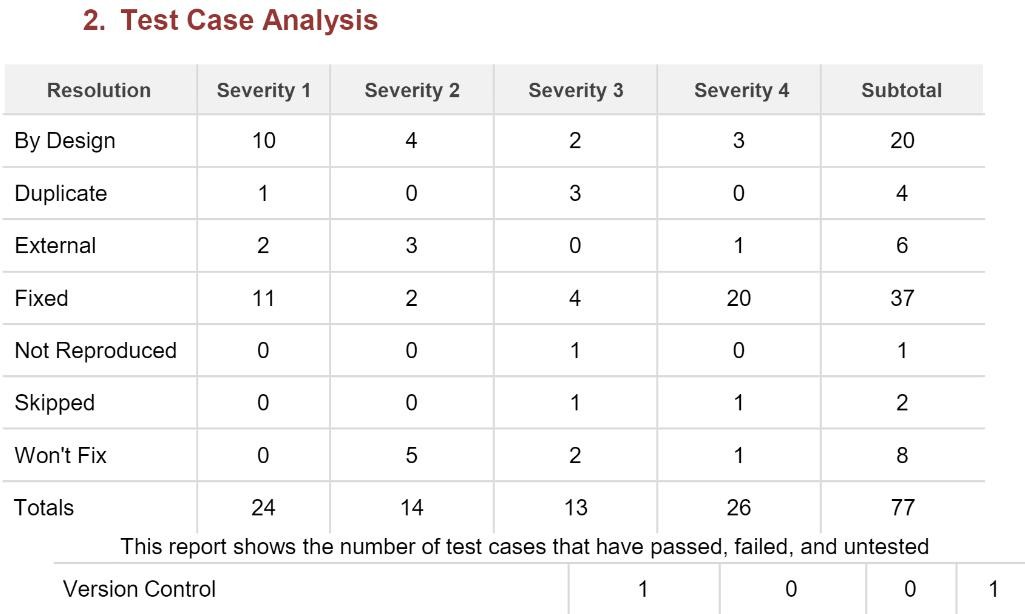
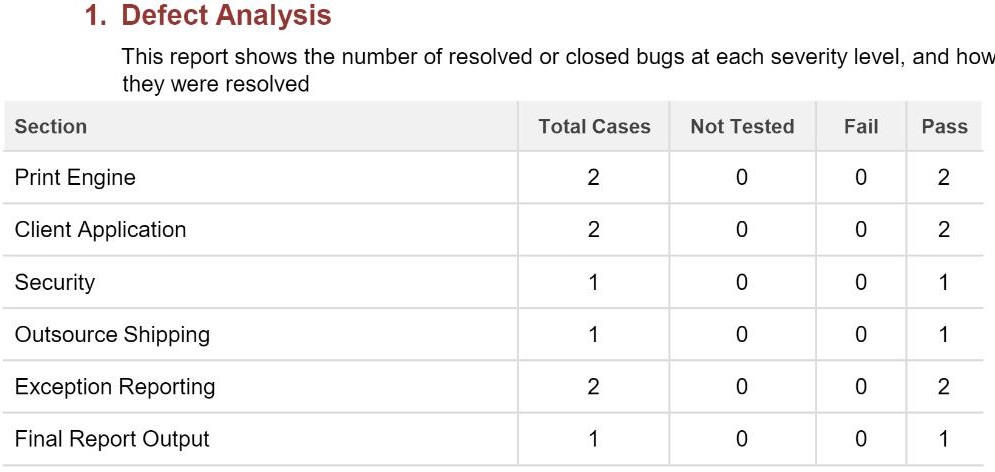
Most strokes involve rhythmic and coordinated movements of all major body parts — torso, arms, legs, hands, feet, and head.

# TESTING

## Test Cases





* 1. **User Acceptance Testing**

# ADVANTAGES & DISADVANTAGES

* The Approach detected human drifting and drowning up to a range of 5m in water bodies. The final result achieved an average of 82.10% accuracy.
* Identifies drowning victims in a minimum amount of time and dispatches an automated drone to save them

 Too much air bubbles generated by the drowning swimmer in the water will also occur. There is a chance that the action cannot be captured by the computer

# CONCLUSION

The system is not designed to replace a lifeguard or other human monitor, but to act as an additional tool. “It helps the lifeguard to detect the underwater situation where they can’t easily observe”.

# APPENDIX

## Source Code:

## // base.html

|  |
| --- |
| <!DOCTYPE html><html lang="en"><head><meta charset="UTF-8"><meta http-equiv="X-UA-Compatible" content="IE=edge"><meta name="viewport" content="width=device-width, initial-scale=1.0"><link rel="stylesheet" href="styles.css"><script src="https://cdn.tailwindcss.com"></script><script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script><!-- external js --><title>VirualEye</title>{% block head %}{% endblock %}</head><body>{% block body %}{% endblock %}</body></html> |

## // counter.html

|  |
| --- |
| <span id="object\_counter">{{ dyn\_var }}</span> |

## // detection.html

|  |
| --- |
| {% extends 'base.html' %}{% block head %}<link rel="stylesheet" href="styles.css"><script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script><style>#detection-about {rotate: 270deg;}#detection-logout {rotate: 270deg;}#detection-about:hover {color: black;background:rgb(67, 67, 245);padding: 1vh;}#detection-logout:hover {color: black;background:rgb(67, 67, 245);padding: 1vh;}#alert-btn:hover {background: white;color: black;border-width: 0 5px 5px 0;border-color: black rgb(67, 67, 245) rgb(67, 67, 245) black;opacity: 100%;}#activateAlarm-btn:hover {background: white;color: black;border-width: 0 5px 5px 0;border-color: black rgb(67, 67, 245) rgb(67, 67, 245) black;opacity: 100%;}</style><script>// Potential Counterconst delay = ms => new Promise(res => setTimeout(res, ms));const update\_counter = () => {$.ajax({url: "/counter",type: "POST",dataType: "json",success: async function(data) {console.log("potential subject drowning: " + parseInt(data[1].slice(26,-7)))$(object\_counter).replaceWith(data)if (parseInt(data[1].slice(26,-7)) > 0) {await delay(2000)}update\_counter()}})}update\_counter()</script>{% endblock %}{% block body %}<body style="overflow: hidden;" class="bg-black"><div class="container mx-auto mt-5"><div class="container bg-black px-5 grid"><h1 class="px-10 py-10 text-8xl text-white font-bold">v<span class="text-blue-600">eye</span></h1><div style="display: inline-block; position: absolute; top: 25%; right: 0"><button id="detection-about" class="bg-black text-blue-600 text-5xl m-5 pr-2 pb-2">about</button></div><div style="display: inline-block; position: absolute; top: 60%; right: 0"><button id="detection-logout" class="bg-black text-blue-600 text-5xl m-5 pt-2 pr-2 pb-2">logout</button></div></div><div><img style="display: inline-block; position: relative; left: 5%" class="" src="{{url\_for('video')}}" width="55%"/><div style="display: inline-block; position: relative; top: -50px; left: 5%"><button id="alert-btn" class="bg-black opacity-10 font-bold text-white text-5xl m-5 pr-8 pb-2">alert guards</button><br/><input id="alert-message"style="position: absolute; width: 20vw; height: 80px; border-radius: 5px;"class="text-2xl text-white bg-gray-700 m-5 p-2"placeholder="type a message"><br/><button style="position: fixed; margin-top: 110px" id="activateAlarm-btn" class="bg-black opacity-10 font-bold text-white text-5xl ml-5 mr-5 mb-5 pr-2 pb-2">activate alarm</button></div></div><div class="container bg-black px-5"><h1 class="px-10 py-10 text-4xl text-white">potential subject drowning: <span class="text-red-500" id="object\_counter">{{ dyn\_var }}</span></h1></div></div><script type="module" src="{{ url\_for('static', filename="js\_modules/alarm.js") }}"></script><script type="module" src="{{ url\_for('static', filename="js\_modules/sms.js") }}"></script><script type="text/javascript">var detection\_logout = document.getElementById("detection-logout")var detection\_about = document.getElementById("detection-about")var alert\_btn = document.getElementById("alert-btn")var activate\_alarm = document.getElementById("activateAlarm-btn")detection\_logout.addEventListener("click", () => {window.open("/logout", "\_blank")window.close()})detection\_about.addEventListener("click", () => {window.open("/about", "\_blank")window.close()})</script></body>{% endblock %} |

## // login.html

|  |
| --- |
| {% extends 'base.html' %}{% block head %}<!-- Tailwind-Powered CSS --><link rel="stylesheet" href="styles.css"><!-- JQuery --><script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script><!-- Bootstrap Imports --><link href="https://cdn.jsdelivr.net/npm/bootstrap@5.2.2/dist/css/bootstrap.min.css" rel="stylesheet" integrity="sha384-Zenh87qX5JnK2Jl0vWa8Ck2rdkQ2Bzep5IDxbcnCeuOxjzrPF/et3URy9Bv1WTRi" crossorigin="anonymous"><script src="https://cdn.jsdelivr.net/npm/@popperjs/core@2.11.6/dist/umd/popper.min.js" integrity="sha384-oBqDVmMz9ATKxIep9tiCxS/Z9fNfEXiDAYTujMAeBAsjFuCZSmKbSSUnQlmh/jp3" crossorigin="anonymous"></script><script src="https://cdn.jsdelivr.net/npm/bootstrap@5.2.2/dist/js/bootstrap.min.js" integrity="sha384-IDwe1+LCz02ROU9k972gdyvl+AESN10+x7tBKgc9I5HFtuNz0wWnPclzo6p9vxnk" crossorigin="anonymous"></script><style>/\* to-do: fade-in effect for all successive pages \*/</style>{% endblock %}{% block body %}<body style="max-width: 1440px; margin-left: 5%" class="bg-black overflow-hidden place-content-center"><h1 style="position: absolute; rotate: 270deg; font-size: 150px; right: 2%" class="text-white font-bold">v<span class="text-blue-600">eye</span></h1><!-- login container --><div style="margin-top: 15%;" class="container grid place-content-center"><form id="login" action="{{url\_for("validate\_login")}}" method="post"><!-- <form id="login" action="" method="post"> --><!-- username --><label for="username"></label><input id="user\_login\_email"style="text-align: right;"class="focus:outline-none bg-black text-white text-8xl"type="text"name="user\_login\_email"placeholder="u/name"/><!-- password --><label for="password"></label><input id="user\_login\_pass"style="text-align: right;"class="focus:outline-none bg-black text-blue-600 text-8xl"type="password"name="user\_login\_password"placeholder="p/word"><p style="text-align: right;position: relative;right: 14%;"class="text-red-600">{{dyn\_message}}</p></form><button id="login\_btn" form="login" type="submit" style="margin-left: 5%; position: relative; max-width: 150px" class="hover:bg-blue-600 rounded-full text-white text-9xl pl-2 pb-4">></button><div style="position: relative; bottom: 50%" class="container grid place-content-end"><button id="register\_direct"><h1 class="mr-10 p-4 hover:bg-blue-600 text-2xl text-right text-white"><span class="font-bold text-4xl">New User?</span></br>We've got you covered!</h1></button></div></div><script type="text/javascript">// inupt elementsconst user\_login\_email = document.getElementById("user\_login\_email")const user\_login\_password= document.getElementById("user\_login\_password")// buttonsconst login\_user\_button = document.getElementById("login\_btn")const register\_user\_button = document.getElementById("register\_direct")// button functions// login\_user\_button.addEventListener("click", () => {// sessionStorage.setItem("user\_login\_email", user\_login\_email.value)// sessionStorage.setItem("user\_login\_pass", user\_login\_password.value)// window.open("/validate\_login", "\_blank")// window.close()// })register\_user\_button.addEventListener("click", () => {window.open("/register\_intro", "\_blank")})</script></body>{% endblock %} |

## // style.css

|  |
| --- |
| /\*! tailwindcss v3.1.8 | MIT License | https://tailwindcss.com\*//\*1. Prevent padding and border from affecting element width. (https://github.com/mozdevs/cssremedy/issues/4)2. Allow adding a border to an element by just adding a border-width. (https://github.com/tailwindcss/tailwindcss/pull/116)\*/\*,::before,::after {box-sizing: border-box;/\* 1 \*/border-width: 0;/\* 2 \*/border-style: solid;/\* 2 \*/border-color: #e5e7eb;/\* 2 \*/}::before,::after {--tw-content: '';}/\*1. Use a consistent sensible line-height in all browsers.2. Prevent adjustments of font size after orientation changes in iOS.3. Use a more readable tab size.4. Use the user's configured `sans` font-family by default.\*/html {line-height: 1.5;/\* 1 \*/-webkit-text-size-adjust: 100%;/\* 2 \*/-moz-tab-size: 4;/\* 3 \*/-o-tab-size: 4;tab-size: 4;/\* 3 \*/font-family: ui-sans-serif, system-ui, -apple-system, BlinkMacSystemFont, "Segoe UI", Roboto, "Helvetica Neue", Arial, "Noto Sans", sans-serif, "Apple Color Emoji", "Segoe UI Emoji", "Segoe UI Symbol", "Noto Color Emoji";/\* 4 \*/}/\*1. Remove the margin in all browsers.2. Inherit line-height from `html` so users can set them as a class directly on the `html` element.\*/body {margin: 0;/\* 1 \*/line-height: inherit;/\* 2 \*/}/\*1. Add the correct height in Firefox.2. Correct the inheritance of border color in Firefox. (https://bugzilla.mozilla.org/show\_bug.cgi?id=190655)3. Ensure horizontal rules are visible by default.\*/hr {height: 0;/\* 1 \*/color: inherit;/\* 2 \*/border-top-width: 1px;/\* 3 \*/}/\*Add the correct text decoration in Chrome, Edge, and Safari.\*/abbr:where([title]) {-webkit-text-decoration: underline dotted;text-decoration: underline dotted;}/\*Remove the default font size and weight for headings.\*/h1,h2,h3,h4,h5,h6 {font-size: inherit;font-weight: inherit;}/\*Reset links to optimize for opt-in styling instead of opt-out.\*/a {color: inherit;text-decoration: inherit;}/\*Add the correct font weight in Edge and Safari.\*/b,strong {font-weight: bolder;}/\*1. Use the user's configured `mono` font family by default.2. Correct the odd `em` font sizing in all browsers.\*/code,kbd,samp,pre {font-family: ui-monospace, SFMono-Regular, Menlo, Monaco, Consolas, "Liberation Mono", "Courier New", monospace;/\* 1 \*/font-size: 1em;/\* 2 \*/}/\*Add the correct font size in all browsers.\*/small {font-size: 80%;}/\*Prevent `sub` and `sup` elements from affecting the line height in all browsers.\*/sub,sup {font-size: 75%;line-height: 0;position: relative;vertical-align: baseline;}sub {bottom: -0.25em;}sup {top: -0.5em;}/\*1. Remove text indentation from table contents in Chrome and Safari. (https://bugs.chromium.org/p/chromium/issues/detail?id=999088, https://bugs.webkit.org/show\_bug.cgi?id=201297)2. Correct table border color inheritance in all Chrome and Safari. (https://bugs.chromium.org/p/chromium/issues/detail?id=935729, https://bugs.webkit.org/show\_bug.cgi?id=195016)3. Remove gaps between table borders by default.\*/table {text-indent: 0;/\* 1 \*/border-color: inherit;/\* 2 \*/border-collapse: collapse;/\* 3 \*/}/\*1. Change the font styles in all browsers.2. Remove the margin in Firefox and Safari.3. Remove default padding in all browsers.\*/button,input,optgroup,select,textarea {font-family: inherit;/\* 1 \*/font-size: 100%;/\* 1 \*/font-weight: inherit;/\* 1 \*/line-height: inherit;/\* 1 \*/color: inherit;/\* 1 \*/margin: 0;/\* 2 \*/padding: 0;/\* 3 \*/}/\*Remove the inheritance of text transform in Edge and Firefox.\*/button,select {text-transform: none;}/\*1. Correct the inability to style clickable types in iOS and Safari.2. Remove default button styles.\*/button,[type='button'],[type='reset'],[type='submit'] {-webkit-appearance: button;/\* 1 \*/background-color: transparent;/\* 2 \*/background-image: none;/\* 2 \*/}/\*Use the modern Firefox focus style for all focusable elements.\*/:-moz-focusring {outline: auto;}/\*Remove the additional `:invalid` styles in Firefox. (https://github.com/mozilla/gecko-dev/blob/2f9eacd9d3d995c937b4251a5557d95d494c9be1/layout/style/res/forms.css#L728-L737)\*/:-moz-ui-invalid {box-shadow: none;}/\*Add the correct vertical alignment in Chrome and Firefox.\*/progress {vertical-align: baseline;}/\*Correct the cursor style of increment and decrement buttons in Safari.\*/::-webkit-inner-spin-button,::-webkit-outer-spin-button {height: auto;}/\*1. Correct the odd appearance in Chrome and Safari.2. Correct the outline style in Safari.\*/[type='search'] {-webkit-appearance: textfield;/\* 1 \*/outline-offset: -2px;/\* 2 \*/}/\*Remove the inner padding in Chrome and Safari on macOS.\*/::-webkit-search-decoration {-webkit-appearance: none;}/\*1. Correct the inability to style clickable types in iOS and Safari.2. Change font properties to `inherit` in Safari.\*/::-webkit-file-upload-button {-webkit-appearance: button;/\* 1 \*/font: inherit;/\* 2 \*/}/\*Add the correct display in Chrome and Safari.\*/summary {display: list-item;}/\*Removes the default spacing and border for appropriate elements.\*/blockquote,dl,dd,h1,h2,h3,h4,h5,h6,hr,figure,p,pre {margin: 0;}fieldset {margin: 0;padding: 0;}legend {padding: 0;}ol,ul,menu {list-style: none;margin: 0;padding: 0;}/\*Prevent resizing textareas horizontally by default.\*/textarea {resize: vertical;}/\*1. Reset the default placeholder opacity in Firefox. (https://github.com/tailwindlabs/tailwindcss/issues/3300)2. Set the default placeholder color to the user's configured gray 400 color.\*/input::-moz-placeholder, textarea::-moz-placeholder {opacity: 1;/\* 1 \*/color: #9ca3af;/\* 2 \*/}input::placeholder,textarea::placeholder {opacity: 1;/\* 1 \*/color: #9ca3af;/\* 2 \*/}/\*Set the default cursor for buttons.\*/button,[role="button"] {cursor: pointer;}/\*Make sure disabled buttons don't get the pointer cursor.\*/:disabled {cursor: default;}/\*1. Make replaced elements `display: block` by default. (https://github.com/mozdevs/cssremedy/issues/14)2. Add `vertical-align: middle` to align replaced elements more sensibly by default. (https://github.com/jensimmons/cssremedy/issues/14#issuecomment-634934210)This can trigger a poorly considered lint error in some tools but is included by design.\*/img,svg,video,canvas,audio,iframe,embed,object {display: block;/\* 1 \*/vertical-align: middle;/\* 2 \*/}/\*Constrain images and videos to the parent width and preserve their intrinsic aspect ratio. (https://github.com/mozdevs/cssremedy/issues/14)\*/img,video {max-width: 100%;height: auto;}\*, ::before, ::after {--tw-border-spacing-x: 0;--tw-border-spacing-y: 0;--tw-translate-x: 0;--tw-translate-y: 0;--tw-rotate: 0;--tw-skew-x: 0;--tw-skew-y: 0;--tw-scale-x: 1;--tw-scale-y: 1;--tw-pan-x: ;--tw-pan-y: ;--tw-pinch-zoom: ;--tw-scroll-snap-strictness: proximity;--tw-ordinal: ;--tw-slashed-zero: ;--tw-numeric-figure: ;--tw-numeric-spacing: ;--tw-numeric-fraction: ;--tw-ring-inset: ;--tw-ring-offset-width: 0px;--tw-ring-offset-color: #fff;--tw-ring-color: rgb(59 130 246 / 0.5);--tw-ring-offset-shadow: 0 0 #0000;--tw-ring-shadow: 0 0 #0000;--tw-shadow: 0 0 #0000;--tw-shadow-colored: 0 0 #0000;--tw-blur: ;--tw-brightness: ;--tw-contrast: ;--tw-grayscale: ;--tw-hue-rotate: ;--tw-invert: ;--tw-saturate: ;--tw-sepia: ;--tw-drop-shadow: ;--tw-backdrop-blur: ;--tw-backdrop-brightness: ;--tw-backdrop-contrast: ;--tw-backdrop-grayscale: ;--tw-backdrop-hue-rotate: ;--tw-backdrop-invert: ;--tw-backdrop-opacity: ;--tw-backdrop-saturate: ;--tw-backdrop-sepia: ;}::-webkit-backdrop {--tw-border-spacing-x: 0;--tw-border-spacing-y: 0;--tw-translate-x: 0;--tw-translate-y: 0;--tw-rotate: 0;--tw-skew-x: 0;--tw-skew-y: 0;--tw-scale-x: 1;--tw-scale-y: 1;--tw-pan-x: ;--tw-pan-y: ;--tw-pinch-zoom: ;--tw-scroll-snap-strictness: proximity;--tw-ordinal: ;--tw-slashed-zero: ;--tw-numeric-figure: ;--tw-numeric-spacing: ;--tw-numeric-fraction: ;--tw-ring-inset: ;--tw-ring-offset-width: 0px;--tw-ring-offset-color: #fff;--tw-ring-color: rgb(59 130 246 / 0.5);--tw-ring-offset-shadow: 0 0 #0000;--tw-ring-shadow: 0 0 #0000;--tw-shadow: 0 0 #0000;--tw-shadow-colored: 0 0 #0000;--tw-blur: ;--tw-brightness: ;--tw-contrast: ;--tw-grayscale: ;--tw-hue-rotate: ;--tw-invert: ;--tw-saturate: ;--tw-sepia: ;--tw-drop-shadow: ;--tw-backdrop-blur: ;--tw-backdrop-brightness: ;--tw-backdrop-contrast: ;--tw-backdrop-grayscale: ;--tw-backdrop-hue-rotate: ;--tw-backdrop-invert: ;--tw-backdrop-opacity: ;--tw-backdrop-saturate: ;--tw-backdrop-sepia: ;}::backdrop {--tw-border-spacing-x: 0;--tw-border-spacing-y: 0;--tw-translate-x: 0;--tw-translate-y: 0;--tw-rotate: 0;--tw-skew-x: 0;--tw-skew-y: 0;--tw-scale-x: 1;--tw-scale-y: 1;--tw-pan-x: ;--tw-pan-y: ;--tw-pinch-zoom: ;--tw-scroll-snap-strictness: proximity;--tw-ordinal: ;--tw-slashed-zero: ;--tw-numeric-figure: ;--tw-numeric-spacing: ;--tw-numeric-fraction: ;--tw-ring-inset: ;--tw-ring-offset-width: 0px;--tw-ring-offset-color: #fff;--tw-ring-color: rgb(59 130 246 / 0.5);--tw-ring-offset-shadow: 0 0 #0000;--tw-ring-shadow: 0 0 #0000;--tw-shadow: 0 0 #0000;--tw-shadow-colored: 0 0 #0000;--tw-blur: ;--tw-brightness: ;--tw-contrast: ;--tw-grayscale: ;--tw-hue-rotate: ;--tw-invert: ;--tw-saturate: ;--tw-sepia: ;--tw-drop-shadow: ;--tw-backdrop-blur: ;--tw-backdrop-brightness: ;--tw-backdrop-contrast: ;--tw-backdrop-grayscale: ;--tw-backdrop-hue-rotate: ;--tw-backdrop-invert: ;--tw-backdrop-opacity: ;--tw-backdrop-saturate: ;--tw-backdrop-sepia: ;}.container {width: 100%;}@media (min-width: 640px) {.container {max-width: 640px;}}@media (min-width: 768px) {.container {max-width: 768px;}}@media (min-width: 1024px) {.container {max-width: 1024px;}}@media (min-width: 1280px) {.container {max-width: 1280px;}}@media (min-width: 1536px) {.container {max-width: 1536px;}}.mx-auto {margin-left: auto;margin-right: auto;}.my-auto {margin-top: auto;margin-bottom: auto;}.my-5 {margin-top: 1.25rem;margin-bottom: 1.25rem;}.mx-5 {margin-left: 1.25rem;margin-right: 1.25rem;}.mt-10 {margin-top: 2.5rem;}.mt-5 {margin-top: 1.25rem;}.ml-5 {margin-left: 1.25rem;}.ml-10 {margin-left: 2.5rem;}.ml-20 {margin-left: 5rem;}.block {display: block;}.inline-block {display: inline-block;}.rounded-lg {border-radius: 0.5rem;}.border-2 {border-width: 2px;}.bg-slate-600 {--tw-bg-opacity: 1;background-color: rgb(71 85 105 / var(--tw-bg-opacity));}.px-5 {padding-left: 1.25rem;padding-right: 1.25rem;}.px-10 {padding-left: 2.5rem;padding-right: 2.5rem;}.py-10 {padding-top: 2.5rem;padding-bottom: 2.5rem;}.text-4xl {font-size: 2.25rem;line-height: 2.5rem;}.text-sm {font-size: 0.875rem;line-height: 1.25rem;}.text-8xl {font-size: 6rem;line-height: 1;}.text-xl {font-size: 1.25rem;line-height: 1.75rem;}.font-bold {font-weight: 700;}.text-white {--tw-text-opacity: 1;color: rgb(255 255 255 / var(--tw-text-opacity));}.text-red-500 {--tw-text-opacity: 1;color: rgb(239 68 68 / var(--tw-text-opacity));} |

## // login\_failed.html

|  |
| --- |
| {% extends 'base.html' %}{% block head %}<!-- Tailwind-Powered CSS --><link rel="stylesheet" href="styles.css"><!-- JQuery --><script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script><!-- Bootstrap Imports --><link href="https://cdn.jsdelivr.net/npm/bootstrap@5.2.2/dist/css/bootstrap.min.css" rel="stylesheet" integrity="sha384-Zenh87qX5JnK2Jl0vWa8Ck2rdkQ2Bzep5IDxbcnCeuOxjzrPF/et3URy9Bv1WTRi" crossorigin="anonymous"><script src="https://cdn.jsdelivr.net/npm/@popperjs/core@2.11.6/dist/umd/popper.min.js" integrity="sha384-oBqDVmMz9ATKxIep9tiCxS/Z9fNfEXiDAYTujMAeBAsjFuCZSmKbSSUnQlmh/jp3" crossorigin="anonymous"></script><script src="https://cdn.jsdelivr.net/npm/bootstrap@5.2.2/dist/js/bootstrap.min.js" integrity="sha384-IDwe1+LCz02ROU9k972gdyvl+AESN10+x7tBKgc9I5HFtuNz0wWnPclzo6p9vxnk" crossorigin="anonymous"></script>{% endblock %}{% block body %}<body style="max-width: 1440px; margin-left: 5%" class="bg-black overflow-hidden place-content-center"><!-- login container --><div style="margin-top: 15%;" class="container grid place-content-center"><form id="login" action="" method="post"><!-- user registration intro --><!-- <h1 class="text-white text-9xl">you're <span class="text-blue-600">in</span>!</h1> --><h1 class="text-white text-9xl">{{dyn\_message}}!</h1></form><!-- <h1 style="display: inline-block" class="text-3xl text-white">get started</h1> --></div><script type="text/javascript">const delay = (delayInms) => {return new Promise(resolve => setTimeout(resolve, delayInms));}const sample = async () => {console.log("delay activated")let delayLogin = await delay(3000);window.open("/login\_failed", "\_blank")window.close()}sample();</script></body>{% endblock %} |

## // login\_redirect.html

|  |
| --- |
| {% extends 'base.html' %}{% block head %}<!-- Tailwind-Powered CSS --><link rel="stylesheet" href="styles.css"><!-- JQuery --><script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script><!-- Bootstrap Imports --><link href="https://cdn.jsdelivr.net/npm/bootstrap@5.2.2/dist/css/bootstrap.min.css" rel="stylesheet" integrity="sha384-Zenh87qX5JnK2Jl0vWa8Ck2rdkQ2Bzep5IDxbcnCeuOxjzrPF/et3URy9Bv1WTRi" crossorigin="anonymous"><script src="https://cdn.jsdelivr.net/npm/@popperjs/core@2.11.6/dist/umd/popper.min.js" integrity="sha384-oBqDVmMz9ATKxIep9tiCxS/Z9fNfEXiDAYTujMAeBAsjFuCZSmKbSSUnQlmh/jp3" crossorigin="anonymous"></script><script src="https://cdn.jsdelivr.net/npm/bootstrap@5.2.2/dist/js/bootstrap.min.js" integrity="sha384-IDwe1+LCz02ROU9k972gdyvl+AESN10+x7tBKgc9I5HFtuNz0wWnPclzo6p9vxnk" crossorigin="anonymous"></script>{% endblock %}{% block body %}<body style="max-width: 1440px; margin-left: 5%" class="bg-black overflow-hidden place-content-center"><!-- login container --><div style="margin-top: 15%;" class="container grid place-content-center"><form id="login" action="" method="post"><!-- user registration intro --><!-- <h1 class="text-white text-9xl">you're <span class="text-blue-600">in</span>!</h1> --><h1 class="text-white text-9xl">{{dyn\_message}}!</h1></form><!-- <h1 style="display: inline-block" class="text-3xl text-white">get started</h1> --></div><script type="text/javascript">const delay = (delayInms) => {return new Promise(resolve => setTimeout(resolve, delayInms));}const sample = async () => {console.log("delay activated")let delayLogin = await delay(3000);window.open("login.html", "\_blank")window.close()}sample();</script></body>{% endblock %} |

## // login\_success.html

|  |
| --- |
| {% extends 'base.html' %}{% block head %}<!-- Tailwind-Powered CSS --><link rel="stylesheet" href="styles.css"><!-- JQuery --><script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script><!-- Bootstrap Imports --><link href="https://cdn.jsdelivr.net/npm/bootstrap@5.2.2/dist/css/bootstrap.min.css" rel="stylesheet" integrity="sha384-Zenh87qX5JnK2Jl0vWa8Ck2rdkQ2Bzep5IDxbcnCeuOxjzrPF/et3URy9Bv1WTRi" crossorigin="anonymous"><script src="https://cdn.jsdelivr.net/npm/@popperjs/core@2.11.6/dist/umd/popper.min.js" integrity="sha384-oBqDVmMz9ATKxIep9tiCxS/Z9fNfEXiDAYTujMAeBAsjFuCZSmKbSSUnQlmh/jp3" crossorigin="anonymous"></script><script src="https://cdn.jsdelivr.net/npm/bootstrap@5.2.2/dist/js/bootstrap.min.js" integrity="sha384-IDwe1+LCz02ROU9k972gdyvl+AESN10+x7tBKgc9I5HFtuNz0wWnPclzo6p9vxnk" crossorigin="anonymous"></script>{% endblock %}{% block body %}<body style="max-width: 1440px; margin-left: 5%" class="bg-black overflow-hidden place-content-center"><!-- login container --><div style="margin-top: 15%;" class="container grid place-content-center"><form id="login" action="" method="post"><!-- user registration intro --><!-- <h1 class="text-white text-9xl">you're <span class="text-blue-600">in</span>!</h1> --><h1 class="text-white text-9xl">{{dyn\_message}}!</h1></form><!-- <h1 style="display: inline-block" class="text-3xl text-white">get started</h1> --></div><script type="text/javascript">const delay = (delayInms) => {return new Promise(resolve => setTimeout(resolve, delayInms));}const sample = async () => {console.log("delay activated")let delayLogin = await delay(3000);window.open("/detection", "\_blank")window.close()}sample();</script></body>{% endblock %} |

## // register\_name.html

|  |
| --- |
| {% extends 'base.html' %}{% block head %}<!-- Tailwind-Powered CSS --><link rel="stylesheet" href="styles.css"><!-- JQuery --><script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script><!-- Bootstrap Imports --><link href="https://cdn.jsdelivr.net/npm/bootstrap@5.2.2/dist/css/bootstrap.min.css" rel="stylesheet" integrity="sha384-Zenh87qX5JnK2Jl0vWa8Ck2rdkQ2Bzep5IDxbcnCeuOxjzrPF/et3URy9Bv1WTRi" crossorigin="anonymous"><script src="https://cdn.jsdelivr.net/npm/@popperjs/core@2.11.6/dist/umd/popper.min.js" integrity="sha384-oBqDVmMz9ATKxIep9tiCxS/Z9fNfEXiDAYTujMAeBAsjFuCZSmKbSSUnQlmh/jp3" crossorigin="anonymous"></script><script src="https://cdn.jsdelivr.net/npm/bootstrap@5.2.2/dist/js/bootstrap.min.js" integrity="sha384-IDwe1+LCz02ROU9k972gdyvl+AESN10+x7tBKgc9I5HFtuNz0wWnPclzo6p9vxnk" crossorigin="anonymous"></script>{% endblock %}{% block body %}<body style="max-width: 1440px; margin-left: 5%" class="bg-black overflow-hidden place-content-center"><h1 style="position: absolute; rotate: 270deg; font-size: 150px; right: 2%" class="text-white font-bold">v<span class="text-blue-600">eye</span></h1><!-- login container --><div style="margin-top: 20%;" class="container grid place-content-center"><form id="register\_name" action="{{url\_for("register\_email")}}" method="post"><!-- get name --><label for="user\_name"><h1 class="text-white text-3xl">you must have a <span class="text-blue-600">name</span><span style="display: block; font-style: italic;"> or should I call you mine? :v</span></h1></label><input id="user\_name"style="text-align: right;"class="focus:outline-none bg-black text-white text-8xl"type="text"name="user\_name"placeholder="e.g. 'Anand Prince'"/></form><button form="register\_name" id="register\_direct\_email" type="submit" style="margin-left: 5%; position: relative; max-width: 150px" class="hover:bg-blue-600 rounded-full text-white text-9xl pl-2 pb-4">></button></div><script type="text/javascript">const register\_user\_email = document.getElementById("register\_direct\_email")// register\_user\_email.addEventListener("click", () => {// window.open("/register\_email", "\_blank")// window.close()// })</script></body>{% endblock %} |

## // register\_email.html

|  |
| --- |
| {% extends 'base.html' %}{% block head %}<!-- Tailwind-Powered CSS --><link rel="stylesheet" href="styles.css"><!-- JQuery --><script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script><!-- Bootstrap Imports --><link href="https://cdn.jsdelivr.net/npm/bootstrap@5.2.2/dist/css/bootstrap.min.css" rel="stylesheet" integrity="sha384-Zenh87qX5JnK2Jl0vWa8Ck2rdkQ2Bzep5IDxbcnCeuOxjzrPF/et3URy9Bv1WTRi" crossorigin="anonymous"><script src="https://cdn.jsdelivr.net/npm/@popperjs/core@2.11.6/dist/umd/popper.min.js" integrity="sha384-oBqDVmMz9ATKxIep9tiCxS/Z9fNfEXiDAYTujMAeBAsjFuCZSmKbSSUnQlmh/jp3" crossorigin="anonymous"></script><script src="https://cdn.jsdelivr.net/npm/bootstrap@5.2.2/dist/js/bootstrap.min.js" integrity="sha384-IDwe1+LCz02ROU9k972gdyvl+AESN10+x7tBKgc9I5HFtuNz0wWnPclzo6p9vxnk" crossorigin="anonymous"></script>{% endblock %}{% block body %}<body style="max-width: 1440px; margin-left: 5%" class="bg-black overflow-hidden place-content-center"><h1 style="position: absolute; rotate: 270deg; font-size: 150px; right: 2%" class="text-white font-bold">v<span class="text-blue-600">eye</span></h1><!-- login container --><div style="margin-top: 20%;" class="container grid place-content-center"><form id="register\_email" action="{{url\_for("register\_password")}}" method="post"><!-- get email --><label for="user\_email"><h1 class="text-white text-3xl">where do we <span class="text-blue-600">mail</span> you at? <span style="display:block" id="email\_hint" class="text-gray-600 italic">number 6, 5th avenue? jk, it's electronic mail xD</span></h1></label><input id="user\_email"style="text-align: right;"class="focus:outline-none bg-black text-white text-8xl"type="text"name="user\_email"placeholder="e/mail"/></form><button form="register\_email" id="register\_direct\_password" type="submit" style="margin-left: 5%; position: relative; max-width: 150px" class="hover:bg-blue-600 rounded-full text-white text-9xl pl-2 pb-4">></button></div><script type="text/javascript">const register\_user = document.getElementById("register\_direct\_password")// register\_user.addEventListener("click", () => {// window.open("/register\_password", "\_blank")// window.close()// })const user\_email = document.getElementById("user\_email")const email\_hint = document.getElementById("email\_hint")user\_email.addEventListener("change", () => {console.log(user\_email.value.length)user\_email.value.length > 0 ? email\_hint.style.display = "none" : email\_hint.style.display = "block"})</script></body>{% endblock %} |

## // register\_password.html

|  |
| --- |
| {% extends 'base.html' %}{% block head %}<!-- Tailwind-Powered CSS --><link rel="stylesheet" href="styles.css"><!-- JQuery --><script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script><!-- Bootstrap Imports --><link href="https://cdn.jsdelivr.net/npm/bootstrap@5.2.2/dist/css/bootstrap.min.css" rel="stylesheet" integrity="sha384-Zenh87qX5JnK2Jl0vWa8Ck2rdkQ2Bzep5IDxbcnCeuOxjzrPF/et3URy9Bv1WTRi" crossorigin="anonymous"><script src="https://cdn.jsdelivr.net/npm/@popperjs/core@2.11.6/dist/umd/popper.min.js" integrity="sha384-oBqDVmMz9ATKxIep9tiCxS/Z9fNfEXiDAYTujMAeBAsjFuCZSmKbSSUnQlmh/jp3" crossorigin="anonymous"></script><script src="https://cdn.jsdelivr.net/npm/bootstrap@5.2.2/dist/js/bootstrap.min.js" integrity="sha384-IDwe1+LCz02ROU9k972gdyvl+AESN10+x7tBKgc9I5HFtuNz0wWnPclzo6p9vxnk" crossorigin="anonymous"></script>{% endblock %}{% block body %}<body style="max-width: 1440px; margin-left: 5%" class="bg-black overflow-hidden place-content-center"><h1 style="position: absolute; rotate: 270deg; font-size: 150px; right: 2%" class="text-white font-bold">v<span class="text-blue-600">eye</span></h1><!-- login container --><div style="margin-top: 20%;" class="container grid place-content-center"><form id="register\_password" action="{{url\_for("register\_phoneNumber")}}" method="post"><!-- get name --><label for="user\_password"><h1 class="text-white text-3xl">tell us a <span class="text-blue-600">pass</span> we'd use to let you in<span style="display:block" id="pass\_hint" class="text-gray-600 italic">dw, we're not gonnna tell anybody, hope you wouldn't too ;D</span></h1></label><input id="user\_pass"style="text-align: right;"class="focus:outline-none bg-black text-blue-600 text-8xl"type="text"name="user\_pass"placeholder="p/word"/></form><button form="register\_password" id="register\_direct\_phoneNumber" type="submit" style="margin-left: 5%; position: relative; max-width: 150px" class="hover:bg-blue-600 rounded-full text-white text-9xl pl-2 pb-4">></button></div><script type="text/javascript">const register\_user\_password = document.getElementById("register\_direct\_phoneNumber")// register\_user\_password.addEventListener("click", () => {// // window.alert("button pressed")// window.open("/register\_phoneNumber", "\_blank")// window.close()// })const user\_pass = document.getElementById("user\_pass")const pass\_hint = document.getElementById("pass\_hint")user\_pass.addEventListener("change", () => {console.log(user\_pass.value.length)user\_pass.value.length > 0 ? pass\_hint.style.display = "none" : pass\_hint.style.display = "block"})// get user password and hide it</script></body>{% endblock %} |

## // register\_phoneNumber.html

|  |
| --- |
| {% extends 'base.html' %}{% block head %}<!-- Tailwind-Powered CSS --><link rel="stylesheet" href="styles.css"><!-- JQuery --><script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script><!-- Bootstrap Imports --><link href="https://cdn.jsdelivr.net/npm/bootstrap@5.2.2/dist/css/bootstrap.min.css" rel="stylesheet" integrity="sha384-Zenh87qX5JnK2Jl0vWa8Ck2rdkQ2Bzep5IDxbcnCeuOxjzrPF/et3URy9Bv1WTRi" crossorigin="anonymous"><script src="https://cdn.jsdelivr.net/npm/@popperjs/core@2.11.6/dist/umd/popper.min.js" integrity="sha384-oBqDVmMz9ATKxIep9tiCxS/Z9fNfEXiDAYTujMAeBAsjFuCZSmKbSSUnQlmh/jp3" crossorigin="anonymous"></script><script src="https://cdn.jsdelivr.net/npm/bootstrap@5.2.2/dist/js/bootstrap.min.js" integrity="sha384-IDwe1+LCz02ROU9k972gdyvl+AESN10+x7tBKgc9I5HFtuNz0wWnPclzo6p9vxnk" crossorigin="anonymous"></script>{% endblock %}{% block body %}<body style="max-width: 1440px; margin-left: 5%" class="bg-black overflow-hidden place-content-center"><h1 style="position: absolute; rotate: 270deg; font-size: 150px; right: 2%" class="text-white font-bold">v<span class="text-blue-600">eye</span></h1><!-- login container --><div style="margin-top: 20%;" class="container grid place-content-center"><form id="register\_phone" action="{{url\_for("register\_outro")}}" method="post"><!-- get name --><label for="user\_phone"><h1 class="text-white text-3xl">final step; your <span class="text-blue-600">phone number</span> to set you in touch with us<span style="display:block" id="phone\_hint" class="text-gray-600 italic">for alerts just in case</span></h1></label><input id="user\_phone"style="text-align: right;"class="focus:outline-none bg-black text-white text-8xl"type="text"name="user\_phone"placeholder="p/number"/></form><button form="register\_phone" id="register\_direct\_outro" type="submit" style="margin-left: 5%; position: relative; max-width: 150px" class="hover:bg-blue-600 rounded-full text-white text-9xl pl-2 pb-4">></button></div><script type="text/javascript">const register\_user\_phoneNumber = document.getElementById("register\_direct\_outro")// register\_user\_phoneNumber.addEventListener("click", () => {// window.open("/register\_outro", "\_blank")// window.close()// })</script></body>{% endblock %} |

## // alarm.js

|  |
| --- |
| var alarm = document.getElementById("activateAlarm-btn")var audio = new Audio("alarm.mp3")alarm.addEventListener("click", ()=>{// window.alert("alarm button pressed!")audio.play()}) |

## // sms.js

|  |
| --- |
| import { Vonage } from "@vonage/server-sdk";var alert\_message = document.getElementById("alert-message")var activate\_alarm = document.getElementById("activateAlarm-btn")activate\_alarm.addEventListener("click", () => {// window.alert("alarm button pressed!")console.log(alert\_message.value)})const vonage = new Vonage({apiKey: '<key>',apiSecret: '<secret>'})const from = "Vonage APIs"const to = "<phone\_number>"const text = alert\_messagevonage.message.sendSMs(from, to, text, (err, responseData) => {if (err) {console.log(err);} else {if(responseData.messages[0]['status'] === "0") {console.log("Message sent successfully.");} else {console.log(`Message failed with error: ${responseData.messages[0]['error-text']}`);}}}) |

## // app.py

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| from flask import Flask, render\_template, Response, jsonify, requestimport cv2import numpy as np# for accessing session storagefrom flask import session, redirect# cloudant importsfrom cloudant.client import Cloudant# sub-imports# from object\_detection import Detect# connecting client with cloudant dbclient = Cloudant.iam('5e67dcf0-6dd2-49ef-ba49-548e2376d5fa-bluemix','T0BBzOvBQK6JyezcCq1xelsmRiuVe-AQ1PwdufX\_3XCL',connect = True)db = client.create\_database('veye\_users')app=Flask(\_\_name\_\_)class Detect:def \_\_init\_\_(self, video\_source,classes,config,weights,frame\_title,wait\_key,threshold,suppression\_threshold,yolo\_image\_size):self.video\_source = video\_sourceself.classes = classesself.config = configself. weights = weightsself.frame\_title = frame\_titleself.wait\_key = wait\_keyself.threshold = thresholdself.suppression\_threshold = suppression\_thresholdself.yolo\_image\_size = yolo\_image\_sizeself.detect\_count = 0def find\_objects(self, model\_outputs, YOLO\_IMAGE\_SIZE, THRESHOLD, SUPPRESSION\_THRESHOLD):bounding\_box\_locations = []class\_ids = []confidence\_values = []for output in model\_outputs:for prediction in output:class\_probabilities = prediction[5:]class\_id = np.argmax(class\_probabilities)confidence = class\_probabilities[class\_id]if confidence > THRESHOLD:w, h = int(prediction[2] \* YOLO\_IMAGE\_SIZE), int(prediction[3] \* YOLO\_IMAGE\_SIZE)# the center of the bounding box (we should transform these values)x, y = int(prediction[0] \* YOLO\_IMAGE\_SIZE - w / 2), int(prediction[1] \* YOLO\_IMAGE\_SIZE - h / 2)bounding\_box\_locations.append([x, y, w, h])class\_ids.append(class\_id)confidence\_values.append(float(confidence))box\_indexes\_to\_keep = cv2.dnn.NMSBoxes(bounding\_box\_locations, confidence\_values, THRESHOLD, SUPPRESSION\_THRESHOLD)return box\_indexes\_to\_keep, bounding\_box\_locations, class\_ids, confidence\_valuesdef mark\_detected\_objects(self, img, bounding\_box\_ids, all\_bounding\_boxes, class\_ids, confidence\_values, width\_ratio,height\_ratio):for index in bounding\_box\_ids:bounding\_box = all\_bounding\_boxes[index]x, y, w, h = int(bounding\_box[0]), int(bounding\_box[1]), int(bounding\_box[2]), int(bounding\_box[3])# we have to transform the locations and coordinates because the image is resizedx = int(x \* width\_ratio)y = int(y \* height\_ratio)w = int(w \* width\_ratio)h = int(h \* height\_ratio)# OpenCV deals with BGR blue green red (255,0,0) then it is the blue color# we are not going to detect every objects just PERSON and CAR# if class\_ids[index] == 2:# cv2.rectangle(img, (x, y), (x+w, y+h), (255, 0, 0), 2)# class\_with\_confidence = 'CAR' + str(int(confidence\_values[index] \* 100)) + '%'# cv2.putText(img, class\_with\_confidence, (x, y-10), cv2.FONT\_HERSHEY\_COMPLEX\_SMALL, 0.5, (255, 0, 0), 1)if class\_ids[index] == 0:self.detect\_count += 1cv2.rectangle(img, (x, y), (x+w, y+h), (255, 0, 0), 2)class\_with\_confidence = f'drowning' + str(int(confidence\_values[index] \* 100)) + '%'cv2.putText(img, class\_with\_confidence, (x, y-10), cv2.FONT\_HERSHEY\_COMPLEX\_SMALL, 0.5, (255, 0, 0), 1)# find\_objects# mark\_detected\_objectsdef generate\_frames(self):capture = cv2.VideoCapture(self.video\_source)neural\_network = cv2.dnn.readNetFromDarknet(self.config, self.weights)neural\_network.setPreferableBackend(cv2.dnn.DNN\_BACKEND\_OPENCV)neural\_network.setPreferableTarget(cv2.dnn.DNN\_TARGET\_CPU)YOLO\_IMAGE\_SIZE = self.yolo\_image\_sizewhile True:frame\_grabbed, frame = capture.read()if not frame\_grabbed:breakelse:original\_width, original\_height = frame.shape[1], frame.shape[0]# the image into a BLOB [0-1] RGB - BGRblob = cv2.dnn.blobFromImage(frame, 1 / 255, (YOLO\_IMAGE\_SIZE, YOLO\_IMAGE\_SIZE), True, crop=False)neural\_network.setInput(blob)layer\_names = neural\_network.getLayerNames()# YOLO network has 3 output layer - note: these indexes are starting with 1output\_names = [layer\_names[index - 1] for index in neural\_network.getUnconnectedOutLayers()]self.detect\_count = 0outputs = neural\_network.forward(output\_names)predicted\_objects, bbox\_locations, class\_label\_ids, conf\_values = self.find\_objects(outputs,self.yolo\_image\_size,self.threshold,self.suppression\_threshold)self.mark\_detected\_objects(frame, predicted\_objects, bbox\_locations, class\_label\_ids, conf\_values,original\_width / YOLO\_IMAGE\_SIZE, original\_height / YOLO\_IMAGE\_SIZE)ret, buffer = cv2.imencode('.jpg', frame)frame = buffer.tobytes()yield (b'--frame\r\n'b'Content-Type: image/jpeg\r\n\r\n' + frame + b'\r\n')# global declarationsource = Detect(video\_source = './media/swimming\_pool1.mp4',classes = ['drowning'],config = './config/yolov3\_testing.cfg',weights = './weights/yolov3\_training\_3000.weights',frame\_title = 'YOLO V3 Object Detection',wait\_key = 10,threshold = 0.5,suppression\_threshold = 0.4,yolo\_image\_size = 320)@app.route('/counter', methods=['POST'])def counter():return jsonify('', render\_template('counter.html', dyn\_var = source.detect\_count))@app.route('/video')def video():frame = source.generate\_frames()return Response(frame,mimetype='multipart/x-mixed-replace; boundary=frame')@app.route('/detection', methods=["GET", "POST"])def detection():if (session.get("user\_token")):return render\_template('detection.html', dyn\_var = source.detect\_count)return render\_template("login\_redirect.html", dyn\_message = "You need to login first!")# login & registration@app.route('/validate\_login', methods=["GET", "POST"])def validate\_login():if request.method == "POST":email = request.form.get("user\_login\_email")password = request.form.get("user\_login\_password")session["login\_username"] = emailsession["login\_password"] = passwordtest\_login = {'\_id': email,'pword': password}# test\_login = {# '\_id': 'veye\_admin',# 'pword': 'veye\_admin'# }if (test\_login['\_id'] and test\_login['pword']) in db:session["user\_token"] = db[test\_login['\_id']]['\_rev']print(f"username: {session.get('login\_username')}; password: {session.get('login\_password')}")return render\_template('login\_modules/login\_success.html',dyn\_message = "You're in!")return render\_template('/login.html', dyn\_message = "check your u/name or p/word")@app.route('/logout')def logout():try:if session.get("login\_username"): session.pop("login\_username")if session.get("login\_password"): session.pop("login\_password")if session.get("user\_taken"): session.pop("user\_token")except:print("something went wrong")return redirect("/")@app.route('/about')def about():return render\_template("about.html")@app.route('/register\_intro', methods=["GET", "POST"])def register\_intro():return render\_template('register\_user/register\_intro.html')@app.route('/register\_name', methods=["POST", "GET"])def register\_name():# if request.method == "POST":# register\_user\_name = request.form.get("user\_name")# session["register\_user\_name"] = register\_user\_name# print(f"name set: {session['register\_user\_name']}")return render\_template('register\_user/register\_name.html')@app.route('/register\_email', methods=["GET", "POST"])def register\_email():if request.method == "POST":# retrieve user\_name from name pageregister\_user\_name = request.form.get("user\_name")session["register\_user\_name"] = register\_user\_nameprint(f"name set: {session['register\_user\_name']}")return render\_template('register\_user/register\_email.html')@app.route('/register\_password', methods=["GET", "POST"])def register\_password():if request.method == "POST":# retrieve user\_email from email pageregister\_user\_email = request.form.get("user\_email")session["register\_user\_email"] = register\_user\_emailprint(f"email set: {session['register\_user\_email']}")return render\_template('register\_user/register\_password.html')@app.route('/register\_phoneNumber', methods=["GET", "POST"])def register\_phoneNumber():if request.method == "POST":# retrieve user\_pass from password pageregister\_user\_pword = request.form.get("user\_pass")session["register\_user\_pword"] = register\_user\_pwordprint(f"pword set: {session['register\_user\_pword']}")return render\_template('register\_user/register\_phoneNumber.html')@app.route('/register\_outro', methods=["GET", "POST"])def register\_outro():if request.method == "POST":# retrieve user\_phone from phoneNumber pageregister\_user\_phoneNumber = request.form.get("user\_phone")session["register\_user\_phone"] = register\_user\_phoneNumberprint(f"phone number set: {session['register\_user\_phone']}")register\_new\_document = {'\_id': str(session.get("register\_user\_email")),'name': str(session.get("register\_user\_name")),'pword': str(session.get("register\_user\_pword")),'phoneNumber': str(session.get("register\_user\_phone"))}new\_document = db.create\_document(register\_new\_document)if new\_document.exists():print(register\_new\_document)return render\_template('register\_user/register\_outro.html',dyn\_message = "You're in!")return render\_template('register\_user/register\_outro.html',dyn\_message = "Oops! Seems like there was a problem while registering you in. Contact Administrator.")@app.route('/')def login():return render\_template('login.html', dyn\_message = "")if \_\_name\_\_ == "\_\_main\_\_":app.config["SESSION\_PERMANENT"] = Falseapp.config["SESSION\_TYPE"] = "filesystem"app.secret\_key = "veye"app.run(debug=True) |

**GitHub & Project Demo Link**

**GitHub Link :** [**https://github.com/IBM-EPBL/IBM-Project-18052-1659678746.git**](https://github.com/IBM-EPBL/IBM-Project-18052-1659678746.git)