TOPIC	**DIGITAL NATURALIST - AI ENABLED TOOL FOR BIODIVERSITY RESEARCHERS**
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FACULTY MENTOR	**Ms.Lalitha.A, M.E**

DIGITAL NATURALIST - AI ENABLED TOOL FOR BIODIVERSITY RESEARCHERS

INTRODUCTION

PROJECT OVERVIEW:

The over of the project is to provide the information of the plants, animals and flowers. A naturalist is someone who studies the patterns of nature, identifies a different kind of flora and fauna in nature. Being able to identify the flora and fauna around us often leads to an interest in protecting wild spaces, and collecting and sharing information about the species we see on our travels is very useful for conservation groups like NCC.

When venturing into the woods, field naturalists usually rely on common approaches like always carrying a guidebook around everywhere or seeking help from experienced ornithologists. There should be a handy tool for them to capture, identify and share the beauty to the outside world.

PROJECT PURPOSE:

The main purpose of the project is to be an guide for the person who want to know the information about the plants, animals, flowers and birds. It is an AI enabled tool which is helpful to the person who don’t know about the flora and fauna.

LITERATURE SURVEY

EXISTING PROBLEM:

In the previous model the accuracy of the images are confused and it may show the wrong output and it provide the incorrect information to the client or person and it has an limited amount of the data. The increasing availability of digital images, coupled with sophisticated artificial intelligence (AI)

techniques for image classification, presents an exciting opportunity for biodiversity researchers to create new datasets of species observations. We investigated whether an AI plant species classifier could extract previously unexploited biodiversity data from social media photos (Flickr). We found over 60,000 geolocated images tagged with the keyword “flower” across an urban and rural location in the UK and classified these using AI, reviewing these identifications and assessing the representativeness of images. Images were predominantly biodiversity focused, showing single species. Non-native garden plants dominated, particularly in the urban setting. The AI classifier performed best when photos were focused on single native species in wild situations but also performed well at higher taxonomic levels (genus and family), even when images substantially deviated from this. We present a checklist of questions that should be considered when undertaking a similar analysis.

REFERENCE:

1. AI Naturalists Might Hold the Key to Unlocking Biodiversity Data in Social Media Imagery.
2. Enabling Biodiversity Research with Automated Species Identification.
3. Plant Identification Using Artificial Intelligence Innovative Strategies for Teaching Food Biodiversity.
4. Naturalist opens up a wealth of nature data and computer vision challenges.
5. Researchers get AI help to map ecosystem, wildlife conservation.

PROBLEM STATEMENT DEFINITION:

To provide the information about of plants, animals, flowers and birds the pervious system provides the limited amount of the data in current project we are going to rectify it.

IDEATION AND PROPOSED SOLUTION

EMPATHY MAP CANVAS:

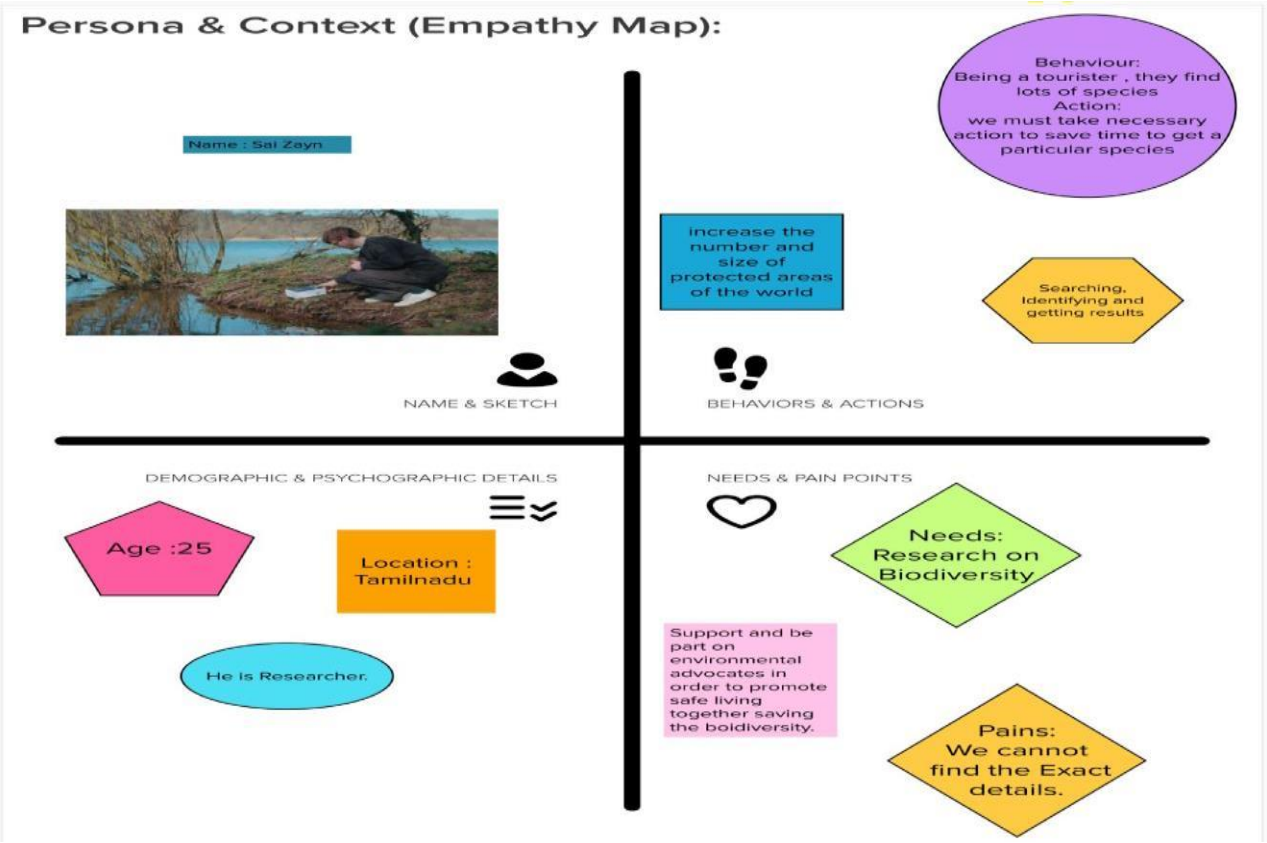
Biodiversity is the variety of different forms of life on earth, including the different plants, animals, micro-organisms, the genes they contain and the ecosystem they form.

Biodiversity is the life support system

There are millions of species of plants and animals; every single variety could be valuable one day or the others.

Human beings cannot exist without the abundance and diversity of these biological resources.

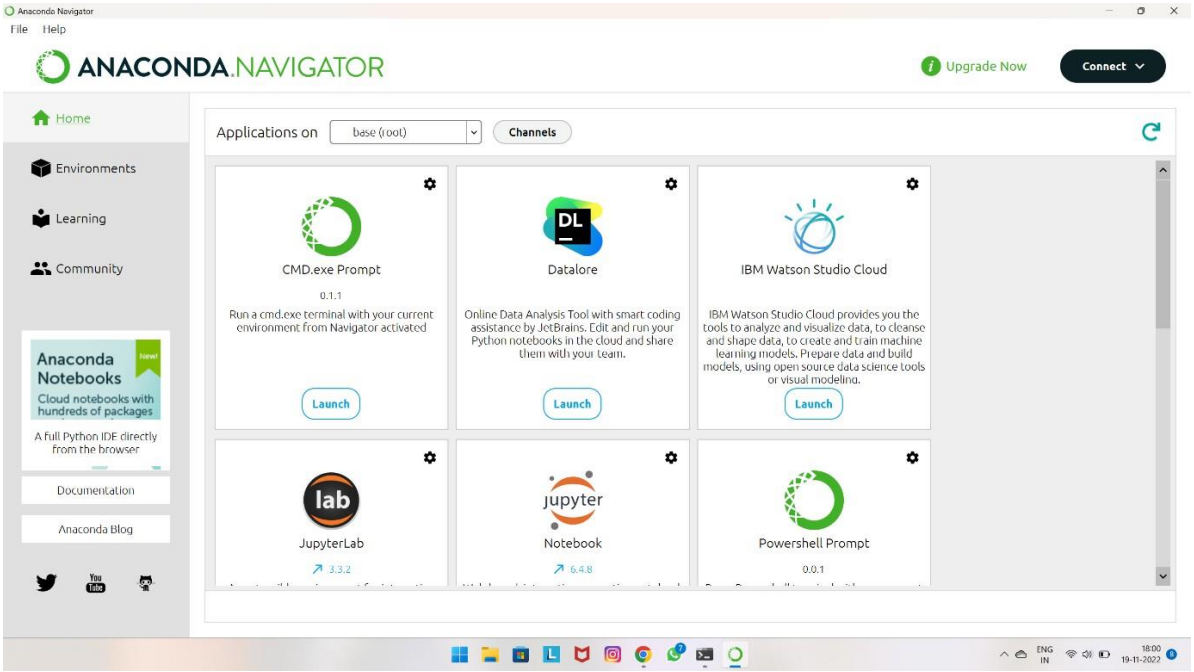
Persona & Context (Empathy Map):

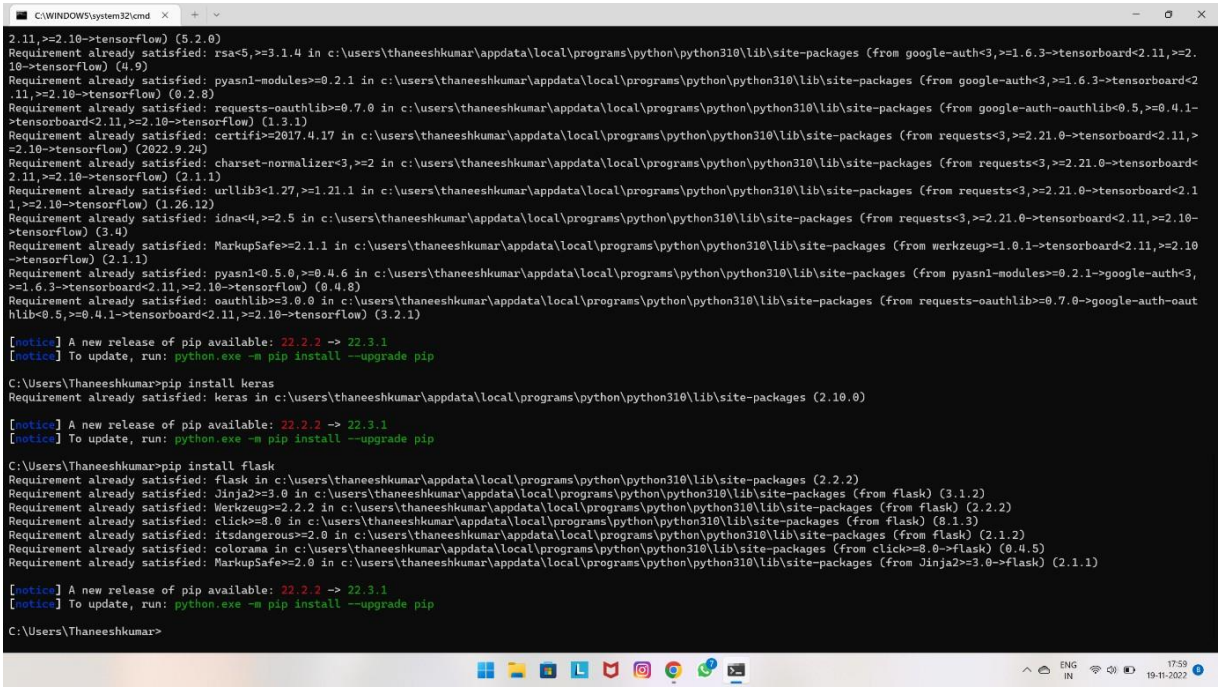


REQUIREMENT ANALYSIS

REQUIREMENTS:

- Anaconda Navigator
- Keras
- Tensorflow
- Sklearn
- Pandas
- Numpy
- Flask
- Matplotlib
- Opencv-python




C:\WINDOWS\system32\cmd
2.11,>=2.10->tensorflow) (5.2.0)
Requirement already satisfied: rsa<5,>=3.1.4 in c:\users\thaneeshkumar\appdata\local\programs\python\python310\lib\site-packages (from google-auth<3,>=1.6.3->tensorboard<2.11,>=2.10->tensorflow) (4.9)
Requirement already satisfied: pyasn1-modules>=0.2.1 in c:\users\thaneeshkumar\appdata\local\programs\python\python310\lib\site-packages (from google-auth<3,>=1.6.3->tensorboard<2.11,>=2.10->tensorflow) (0.2.8)
Requirement already satisfied: requests-oauthlib>=0.7.0 in c:\users\thaneeshkumar\appdata\local\programs\python\python310\lib\site-packages (from google-auth-oauthlib<0.5,>=0.4.1->tensorboard<2.11,>=2.10->tensorflow) (1.3.1)
Requirement already satisfied: certifi>=2017.4.17 in c:\users\thaneeshkumar\appdata\local\programs\python\python310\lib\site-packages (from requests<3,>=2.21.0->tensorboard<2.11,>=2.10->tensorflow) (2022.9.24)
Requirement already satisfied: charset-normalizer<3,>=2 in c:\users\thaneeshkumar\appdata\local\programs\python\python310\lib\site-packages (from requests<3,>=2.21.0->tensorboard<2.11,>=2.10->tensorflow) (2.1.1)
Requirement already satisfied: urllib3<1.27,>=1.21.1 in c:\users\thaneeshkumar\appdata\local\programs\python\python310\lib\site-packages (from requests<3,>=2.21.0->tensorboard<2.11,>=2.10->tensorflow) (1.26.12)
Requirement already satisfied: idna<4,>=2.5 in c:\users\thaneeshkumar\appdata\local\programs\python\python310\lib\site-packages (from requests<3,>=2.21.0->tensorboard<2.11,>=2.10->tensorflow) (3.4)
Requirement already satisfied: MarkupSafe>=2.1.1 in c:\users\thaneeshkumar\appdata\local\programs\python\python310\lib\site-packages (from werkzeug>=1.0.1->tensorboard<2.11,>=2.10->tensorflow) (2.1.1)
Requirement already satisfied: pyasn1<0.5.0,>=0.4.6 in c:\users\thaneeshkumar\appdata\local\programs\python\python310\lib\site-packages (from pyasn1-modules>=0.2.1->google-auth<3,>=1.6.3->tensorboard<2.11,>=2.10->tensorflow) (0.4.8)
Requirement already satisfied: oauthlib>=3.0.0 in c:\users\thaneeshkumar\appdata\local\programs\python\python310\lib\site-packages (from requests-oauthlib>=0.7.0->google-auth-oauthlib<0.5,>=0.4.1->tensorboard<2.11,>=2.10->tensorflow) (3.2.1)
[notice] A new release of pip available: 22.2.2 -> 22.3.1
[notice] To update, run: python.exe -m pip install --upgrade pip
C:\Users\Thaneeshkumar>pip install keras
Requirement already satisfied: keras in c:\users\thaneeshkumar\appdata\local\programs\python\python310\lib\site-packages (2.10.0)
[notice] A new release of pip available: 22.2.2 -> 22.3.1
[notice] To update, run: python.exe -m pip install --upgrade pip
C:\Users\Thaneeshkumar>pip install flask
Requirement already satisfied: flask in c:\users\thaneeshkumar\appdata\local\programs\python\python310\lib\site-packages (2.2.2)
Requirement already satisfied: Jinja2>=3.0 in c:\users\thaneeshkumar\appdata\local\programs\python\python310\lib\site-packages (from flask) (3.1.2)
Requirement already satisfied: Werkzeug>=2.2.2 in c:\users\thaneeshkumar\appdata\local\programs\python\python310\lib\site-packages (from flask) (2.2.2)
Requirement already satisfied: click>=8.0 in c:\users\thaneeshkumar\appdata\local\programs\python\python310\lib\site-packages (from flask) (8.1.3)
Requirement already satisfied: itsdangerous>=2.0 in c:\users\thaneeshkumar\appdata\local\programs\python\python310\lib\site-packages (from flask) (2.1.2)
Requirement already satisfied: colorama in c:\users\thaneeshkumar\appdata\local\programs\python\python310\lib\site-packages (from click>=8.0->flask) (0.4.5)
Requirement already satisfied: MarkupSafe>=2.0 in c:\users\thaneeshkumar\appdata\local\programs\python\python310\lib\site-packages (from Jinja2>=3.0->flask) (2.1.1)
[notice] A new release of pip available: 22.2.2 -> 22.3.1
[notice] To update, run: python.exe -m pip install --upgrade pip
C:\Users\Thaneeshkumar>
ENG
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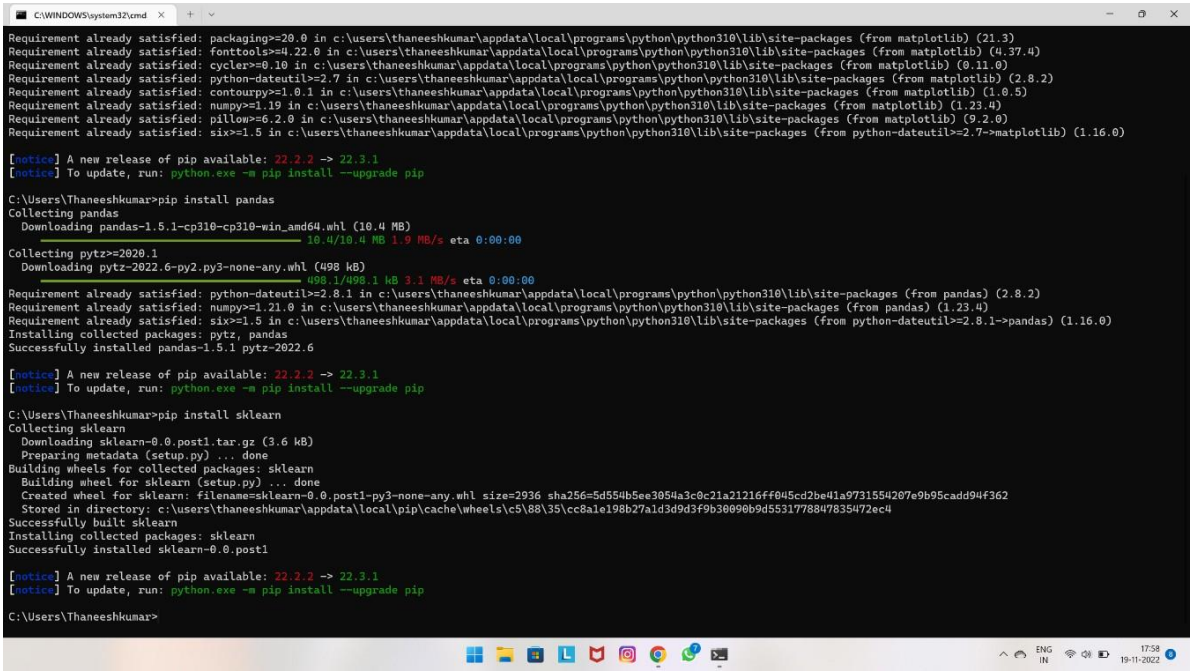
19-11-2022

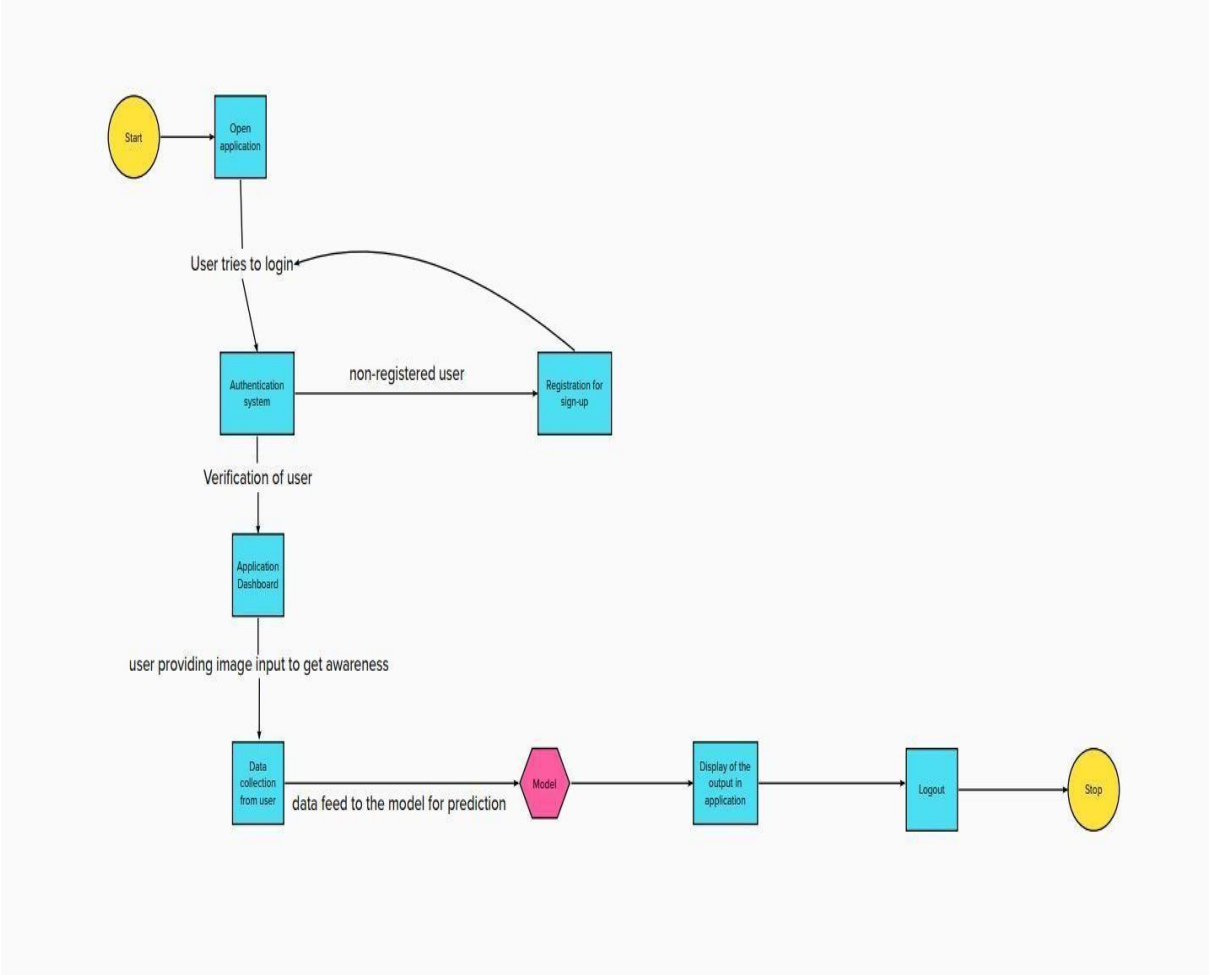

C:\WINDOWS\system32\cmd
Requirement already satisfied: packaging>=20.0 in c:\users\thaneeshkumar\appdata\local\programs\python\python310\lib\site-packages (from matplotlib) (21.3)
Requirement already satisfied: fonttools>=4.22.0 in c:\users\thaneeshkumar\appdata\local\programs\python\python310\lib\site-packages (from matplotlib) (4.37.4)
Requirement already satisfied: cycler>=0.10 in c:\users\thaneeshkumar\appdata\local\programs\python\python310\lib\site-packages (from matplotlib) (0.11.0)
Requirement already satisfied: python-dateutil>=2.7 in c:\users\thaneeshkumar\appdata\local\programs\python\python310\lib\site-packages (from matplotlib) (2.8.2)
Requirement already satisfied: contourpy>=1.0.1 in c:\users\thaneeshkumar\appdata\local\programs\python\python310\lib\site-packages (from matplotlib) (1.0.5)
Requirement already satisfied: numpy>=1.19 in c:\users\thaneeshkumar\appdata\local\programs\python\python310\lib\site-packages (from matplotlib) (1.23.4)
Requirement already satisfied: pillow>=6.2.0 in c:\users\thaneeshkumar\appdata\local\programs\python\python310\lib\site-packages (from matplotlib) (9.2.0)
Requirement already satisfied: six>=1.5 in c:\users\thaneeshkumar\appdata\local\programs\python\python310\lib\site-packages (from python-dateutil>=2.7->matplotlib) (1.16.0)
[notice] A new release of pip available: 22.2.2 -> 22.3.1
[notice] To update, run: python.exe -m pip install --upgrade pip
C:\Users\Thaneeshkumar>pip install pandas
Collecting pandas
Downloading pandas-1.5.1-cp310-cp310-win_amd64.whl (10.4 MB)
10.4/10.4 MB 1.9 MB/s eta 0:00:00
Collecting pytz>=2020.1
Downloading pytz-2022.6-py2.py3-none-any.whl (498 kB)
498.1/498.1 kB 3.1 MB/s eta 0:00:00
Requirement already satisfied: python-dateutil>=2.8.1 in c:\users\thaneeshkumar\appdata\local\programs\python\python310\lib\site-packages (from pandas) (2.8.2)
Requirement already satisfied: numpy>=1.21.0 in c:\users\thaneeshkumar\appdata\local\programs\python\python310\lib\site-packages (from pandas) (1.23.4)
Requirement already satisfied: six>=1.5 in c:\users\thaneeshkumar\appdata\local\programs\python\python310\lib\site-packages (from python-dateutil>=2.8.1->pandas) (1.16.0)
Installing collected packages: pytz, pandas
Successfully installed pandas-1.5.1 pytz-2022.6
[notice] A new release of pip available: 22.2.2 -> 22.3.1
[notice] To update, run: python.exe -m pip install --upgrade pip
C:\Users\Thaneeshkumar>pip install sklearn
Collecting sklearn
Downloading sklearn-0.0.post1.tar.gz (3.6 kB)
Preparing metadata (setup.py) ... done
Building wheels for collected packages: sklearn
Building wheel for sklearn (setup.py) ... done
Created wheel for sklearn: filename=sklearn-0.0.post1-py3-none-any.whl size=2936 sha256=5d554b5ee3054a3c0c21a21216ff045cd2be41a9731554207e9b95cadd94f362
Stored in directory: c:\users\thaneeshkumar\appdata\local\pip\cache\wheels\c5\88\35\cc8a1e198b27a1d3d9d3f9b30090b9d5531778847835472ec4
Successfully built sklearn
Installing collected packages: sklearn
Successfully installed sklearn-0.0.post1
[notice] A new release of pip available: 22.2.2 -> 22.3.1
[notice] To update, run: python.exe -m pip install --upgrade pip
C:\Users\Thaneeshkumar>
ENG
IN
17:58
19-11-2022

PROBLEM SOLUTION FIT:

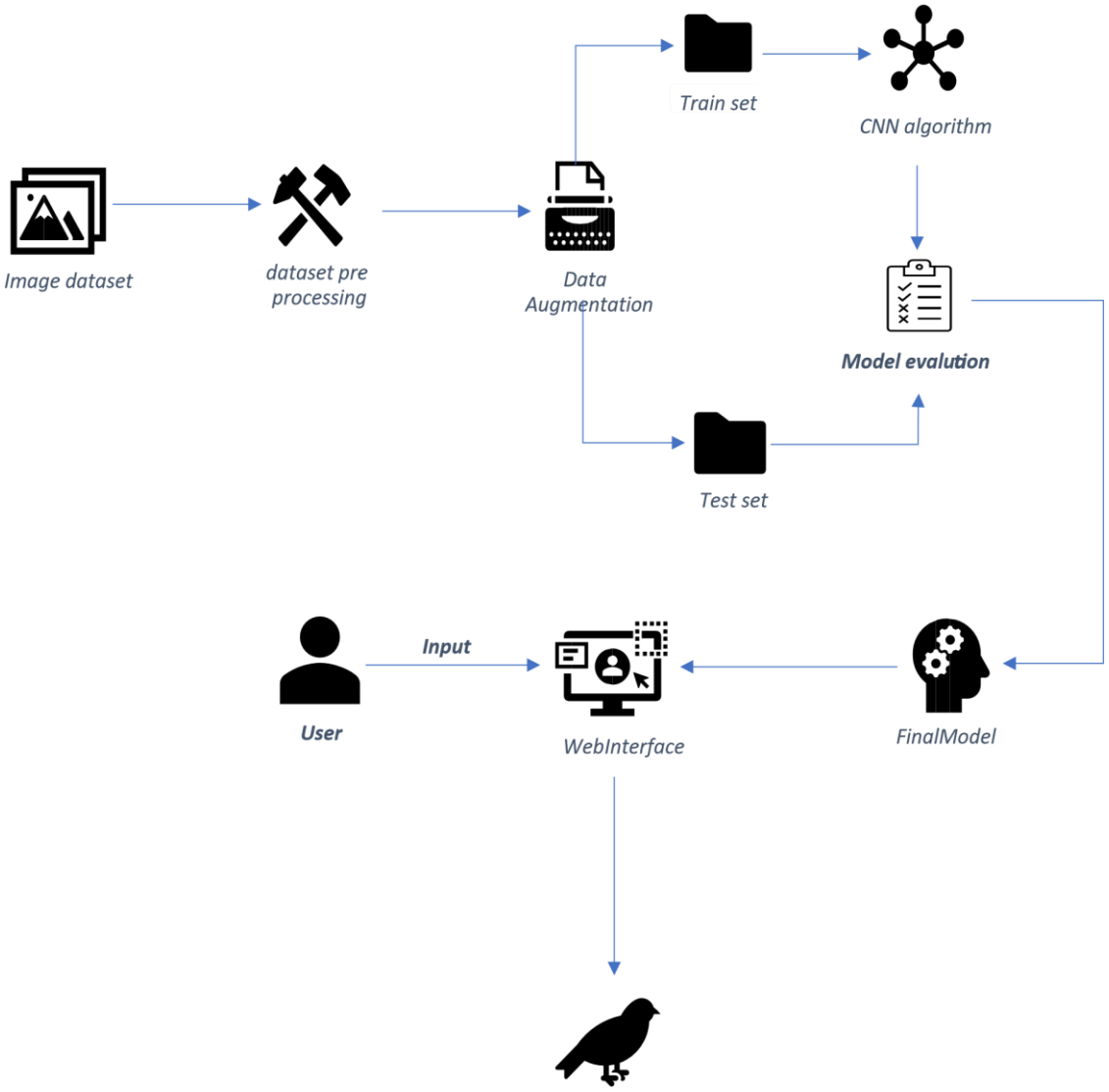
S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	To identify a species in a forest or in any other place, we need to carry a heavy book or seek a professional like botanist or zoologist or an ornithologist, but there should be a handy tool for them to capture, identify and share the beauty to the outside world.
2.	Idea / Solution description	A system is built by using the Image/object recognition and classification using (CNN) Convolutional neural network which while using this system, we can capture the image of any animals and plants and can obtain the information about the flora and fauna at any time.
3.	Novelty / Uniqueness	Use of transfer learning in pre trained models to increase accuracy and training time along with data augmentation to increase the dataset size which will in turn yield more accuracy
4.	Social Impact / Customer Satisfaction	The user can identify the type of species faster and easier without searching in books page by page. It is a useful product for all the research analyst, Ornithologist, Biologist and Marine drivers who can instantly capture images of different species and are able to get all the relevant information about those breeds.
5.	Business Model (Revenue Model)	The model could be open sourced, but we can get some revenue via ads. we will also add a few extra applications like storage and bookmarks permanently for a specific amount of payment.

PROJECT DESIGN

DATAFLOW DIAGRAM:



SOLUTION ARCHITECTURE:



USER STORIES:

PROJECT PLANNING AND SCHEDULING

SPRINT:

Index.html :

```
<html>
 <head>
 <title>D-Naturalist</title>

  <meta charset="utf-8">
  <meta name="viewport" content="width=device-width, initial-
scale=1">
  <link rel="stylesheet"
href="https://maxcdn.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min
.css">
<link href='https://fonts.googleapis.com/css?family=Josefin Sans'
rel='stylesheet'>
<link href='https://fonts.googleapis.com/css?family=Merriweather'
rel='stylesheet'>
 <script
src="https://cdn.bootcss.com/popper.js/1.12.9/umd/popper.min.js"></scri
pt>
   <script
src="https://cdn.bootcss.com/jquery/3.3.1/jquery.min.js"></script>
   <script
src="https://cdn.bootcss.com/bootstrap/4.0.0/js/bootstrap.min.js"></script
>  <style>
                .header {
                top:0px;                margin:0px;                left: 0px;
                right: 0px;          position: fixed;          background:
#22a8ee;          text-transform:uppercase;          letter-
spacing:3px;          color: white;          overflow: hidden;
        padding-bottom: 10px;          font-size: 2.25vw;
        width: 100%;          padding-left:0px;          text-align:
center;
                        padding-top:5px;
                        font-family: 'Merriweather';
                }
        .second{          top:60px;          bottom:0px;
        margin:0px;          left: 0px;          right: 0%;
```

```
            position: absolute;                 padding: 0px;
        width: 100%;

            background-
image:url({{url_for('static',filename="images/6.jfif")}});
        background-repeat:no-repeat;            background-size: cover;
            background-position:center;             background-
attachment:absolute;

            }
            .inside{
            top:7%;             bottom:0px;             margin:0px;
            left: 5%;           right: 55%;
            position: absolute;                 padding-left: 40px;
        padding-top:8%;         padding-right:5%;
        background-color:transparent;           font-family:Merriweather;
            color:#563F31;          font-size:18px;             text-
align:justify;              line-height:32px;
margin:auto; overflow:hidden;  }
        .myButton{                  border: none;               text-align:
center;                 cursor: pointer;            text-transform: uppercase;
                outline: none;              overflow: hidden;
color: #fff;            font-weight: 700;               font-size: 12px;
         background-color: #22a8ee;             padding: 10px 15px;
         margin: 0 auto;
                    box-shadow: 0 5px 15px rgb(34, 168, 238);
            }
 .predictimg{       background-
image:url({{url_for('static',filename="images/7.jfif")}});
        background-repeat:no-repeat;            background-size: cover;
            background-position:center;             background-
attachment:absolute;
 height:100%; margin-top:49.6%; text-align:center; } #showcase{
height:300px;  margin-bottom:20px;
} html {
  scroll-behavior: smooth;
}
#main{
 float:center; color: #22a8ee; width:100%; padding:0 30px; padding-
top:7%; box-sizing: border-box; font-family:Georgia, serif; text-
align:center;
}
```

```
#sidebar{ float:right; width:50%; background-color: transparent; color: #22a8ee; font-family:Georgia, serif; padding-left:0px;  padding-right:0px;  padding-top:1px;  box-sizing: border-box;
}
.img-preview {     width: 300px;     height: 300px;     position: relative;     border: 5px solid #F8F8F8;     box-shadow: 0px 2px 4px 0px rgba(0, 0, 0, 0.1);     margin-top: 1em;     margin-bottom: 1em;
}
.img-preview>div {     width: 100%;     height: 100%;     background-size: 300px 300px;     background-repeat: no-repeat;     background-position: center;
}

input[type="file"] {     display: none;
}
.upload-label{     display: inline-block;     padding: 12px 30px;     background: #22a8ee;     color: #fff;     font-size: 1em;     transition: all .4s;     cursor: pointer;  font-weight:bold;
}

.upload-label:hover{     background: #3A3A3A;     color: white; font-weight:bold;
}

.loader {     border: 8px solid #f3f3f3; /* Light grey */     border-top: 8px solid #22a8ee;     border-radius: 50%;     width: 50px;     height: 50px;     animation: spin 1s linear infinite;
}

@keyframes spin {
   0% { transform: rotate(0deg); }
   100% { transform: rotate(360deg); }
}
                </style>
 </head>
 <body>
                <div class="header">D-Naturalist</div>
                <div class="second">
   <div class="inside">D-Naturalist creating a web application which uses a deep learning model, trained on different species of birds, flowers , animals , marine animal , plants and get the prediction of the user image is been given.
```

```
    <br><br>
<section id="showcase">
<br>
<div style="margin-left:32.5%">
                    <a href="{{ url_for('register')}}"><button type="button"
    class="myButton"
    >REGISTRATION</button></a>
                    <br><br>
        <a href="{{ url_for('login')}}"><button type="button"
    class="myButton" >BIODIVERSITY
    SCRUTINIZE</button></a>

                    </div>
                    </div>
                    </section>

                    </div>

     <script> window.onscroll = function() {myFunction()};

    $(document).ready(function () {
       // Init
       $('.image-section').hide();
       $('.loader').hide();
       $('#result').hide();

       // Upload Preview     function readURL(input) {         if (input.files &&
    input.files[0]) {          var reader = new FileReader();
    reader.onload = function (e) {
                $('#imagePreview').css('background-image', 'url(' +
    e.target.result + ')');
                $('#imagePreview').hide();
                $('#imagePreview').fadeIn(650);
            }
            reader.readAsDataURL(input.files[0]);
        }
    }
    $("#imageUpload").change(function () {
       $('.image-section').show();
       $('#btn-predict').show();
       $('#result').text('');         $('#result').hide();         readURL(this);
    });
```

```
    // Predict

    $('#btn-predict').click(function () {
        var form_data = new FormData($('#upload-file')[0]);

        // Show loading animation
        $(this).hide();
        $('.loader').show();

        // Make prediction by calling api /predict
        $.ajax({ type: 'POST', url: '/predict', data:
form_data, contentType: false, cache:  false,
processData: false, async: true, success: function (data) {
                // Get and display the result
                $('.loader').hide();
                $('#result').fadeIn(600); $('#result').text('Prediction:
'+data); console.log('Success!');
            },
        });
    });

});
</script>



 </body> </html>
```

Login.html:

```
<!DOCTYPE html>
<html lang="zxx">

<head>
    <title>Water Quality Prediction</title>
    <!-- Meta tag Keywords --><meta name="viewport" content="width=device-
    width, initial-scale=1">
    <meta charset="UTF-8" />     <meta name="keywords"
content="Login Form" />
     <link
href="//fonts.googleapis.com/css2?family=Poppins:wght@300;400;500;6
00&display=swap" rel="stylesheet">
    <script src="https://kit.fontawesome.com/af562a2a63.js"
```

```
crossorigin="anonymous"></script>
   <link type="text/css" rel="stylesheet" href="{{ url_for('static',
filename='css/style1.css') }}" />

</head>

<body>

   <!-- form section start -->
   <section class="w3l-mockup-form">
      <div class="container">
         <!-- /form -->
         <div class="workinghny-form-grid">
            <div class="main-mockup">
               <div class="alert-close">
                  <span class="fa fa-close"></span>
               </div>
               <div class="w3l_form align-self">
                  <div class="left_grid_info">
                     <img src="{{ url_for('static', filename='images/bg.png')
}}" alt="">                     </div>
               </div>
               <div class="content-wthree">
                  <h2>Login Now</h2>
                  <p></p>

                  <form action="/login_validation" method="post">

                     <input type="email" class="email" name="email"
placeholder="Email" required>
                     <input type="password" class="password"
name="password" style="margin-bottom: 2px;" placeholder="Password"
required>

                     <button name="submit" name="submit" class="btn"
type="submit">Login</button>
                  </form>
                  <div class="social-icons">
                     <p>Create Account! <a
href="/register">Register</a>.</p>
                  </div>
               </div>
            </div>
```

```
            </div>
            <!-- //form -->
        </div>
    </section>
    <!-- //form section start -->

    <script></script>
    <script>
        $(document).ready(function (c) {
            $('.alert-close').on('click', function (c) {
                $('.main-mockup').fadeOut('slow', function (c) {
                    $('.main-mockup').remove();
                });
            });
        });
    </script>

</body>

</html>
```

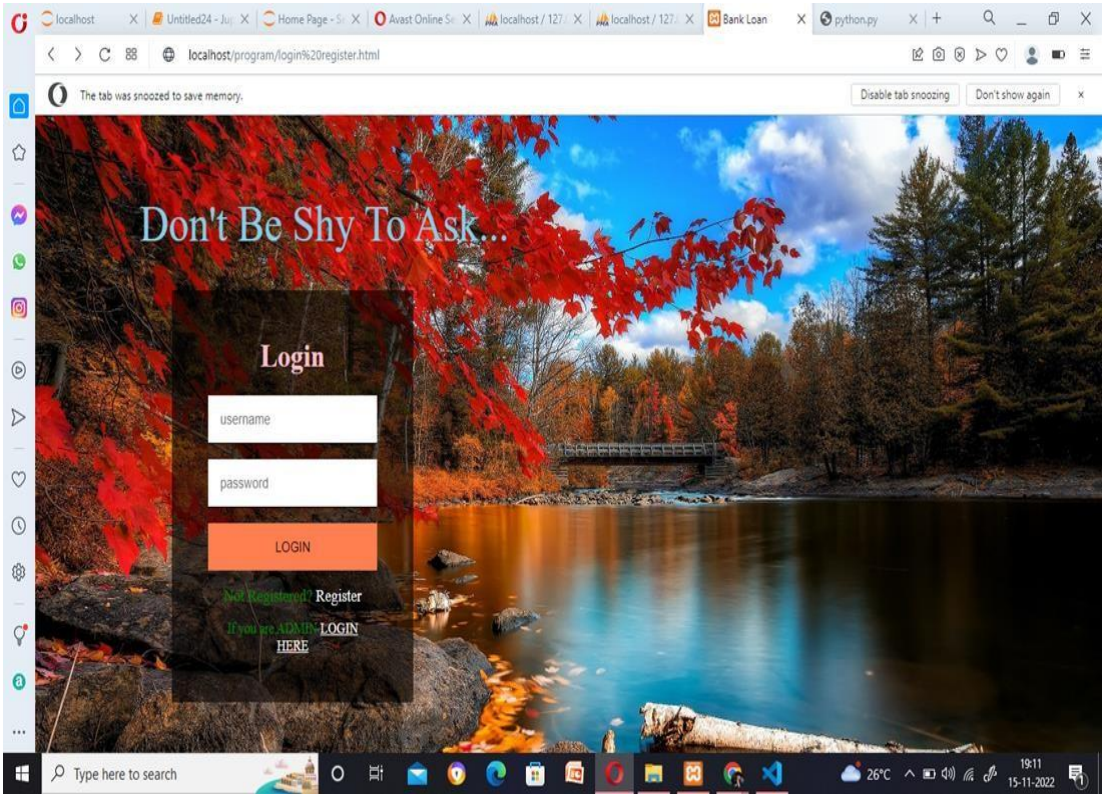
Register.html:

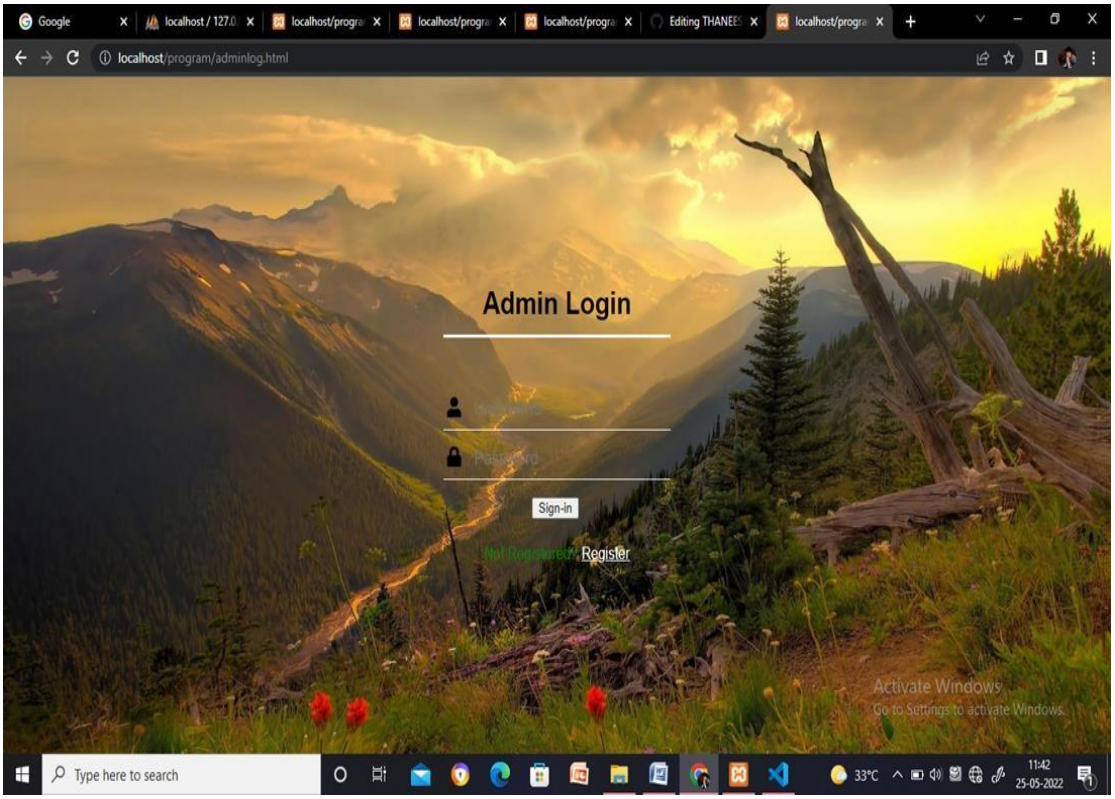
```
<!DOCTYPE html>
<html lang="zxx">

<head>
    <title>D-Naturalist</title>
    <!-- Meta tag Keywords -->
    <meta name="viewport" content="width=device-width, initial-
scale=1">
    <meta charset="UTF-8" />     <meta name="keywords"
content="Login Form" />
    <link
href="//fonts.googleapis.com/css2?family=Poppins:wght@300;400;500;6
00&display=swap" rel="stylesheet">
    <script src="https://kit.fontawesome.com/af562a2a63.js"
crossorigin="anonymous"></script>
     <link type="text/css" rel="stylesheet" href="{{ url_for('static',
filename='css/style1.css') }}" />
</head>

<body>
```

```
    <!-- form section start -->
    <section class="w3l-mockup-form">
        <div class="container">
            <!-- /form -->
            <div class="workinghny-form-grid">
                <div class="main-mockup">
                    <div class="alert-close">
                        <span class="fa fa-close"></span>
                    </div>
                    <div class="w3l_form align-self">
                        <div class="left_grid_info">
                            <img src="{{ url_for('static', filename='images/bg.png')
}}" alt="">                        </div>
                    </div>
                    <div class="content-wthree">
                        <h2>Register Now</h2>
                        <p></p>

                        <form action="/add_user" method="post">
                            <input type="text" class="name" name="name"
required placeholder="Name">
                            <input type="email" class="email" name="email"
required placeholder="Email">
                            <input type="password" class="password"
name="password" required placeholder="Password">
                            <button name="submit" class="btn"
type="submit">Register</button>
                        </form>
                        <div class="social-icons">
                            <p>Have an account! <a href="/login">Login</a>.</p>
                        </div>
                    </div>
                </div>
            </div>
            <!-- //form -->
        </div>
    </section>
    <!-- //form section start -->


    <script>
        $(document).ready(function (c) {
            $('.alert-close').on('click', function (c) {
```

```
            $('.main-mockup').fadeOut('slow', function (c) {
                $('.main-mockup').remove();
            });
        });
    });
</script>

</body>

</html>
```

OUTPUT:


localhost/program/login%20register.html
The tab was snoozed to save memory.
Disable tab snoozing
Don't show again
Don't Be Shy To Ask...
Login
username
password
LOGIN
Not Registered? Register
If you are ADMIN LOGIN HERE
Type here to search
26°C
19:11
15-11-2022


localhost/program/adminlog.html
Admin Login
Sign-in
Register
Activate Windows
Type here to search
33°C
11:42
25-05-2022

ADVANTAGES:

It is useful to find the new variety of plants, animals and flowers and etc.

It is very useful for client.

Easy to build.

Easy to use.

DISADVANTAGE:

It is little hard to use at the first stage.

It cost is high

It need more amount of space of memory.

CONCLUSION:

By combining social media APIs with AI classifiers, we were able to build an AI naturalist capable of creating biodiversity datasets from previously unexploited data sources. However, we demonstrate that there are a number of biases in the data produced, some of which may be able to be mitigated against, that must be carefully considered before the data could be used in certain types of analyses**.**

FUTURESCOPE:

The future scope of the project is to develop the AI tool into an Most used application for the client and we will add the more number of varieties of the plant, animals, plants and sea animals and etc.

APPENDIX:

SOURCE CODE:

Index.html :

```
<html>
 <head>
 <title>D-Naturalist</title>

  <meta charset="utf-8">
  <meta name="viewport" content="width=device-width, initial-
scale=1">
  <link rel="stylesheet"
href="https://maxcdn.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min
.css">
<link href='https://fonts.googleapis.com/css?family=Josefin Sans'
rel='stylesheet'>
<link href='https://fonts.googleapis.com/css?family=Merriweather'
rel='stylesheet'>
 <script
src="https://cdn.bootcss.com/popper.js/1.12.9/umd/popper.min.js"></scri
pt>
   <script
src="https://cdn.bootcss.com/jquery/3.3.1/jquery.min.js"></script>
   <script
src="https://cdn.bootcss.com/bootstrap/4.0.0/js/bootstrap.min.js"></script
>  <style>
                .header {
                top:0px;                margin:0px;                left: 0px;
                right: 0px;          position: fixed;          background:
#22a8ee;          text-transform:uppercase;          letter-
spacing:3px;          color: white;          overflow: hidden;
        padding-bottom: 10px;          font-size: 2.25vw;
        width: 100%;          padding-left:0px;          text-align:
center;
                        padding-top:5px;
                        font-family: 'Merriweather';
                }
        .second{          top:60px;          bottom:0px;
        margin:0px;          left: 0px;          right: 0%;
                position: absolute;          padding: 0px;
        width: 100%;
```

```
                background-
image:url({{url_for('static',filename="images/6.jfif")}});
        background-repeat:no-repeat;          background-size: cover;
                background-position:center;          background-
attachment:absolute;

                }
                .inside{
                top:7%;          bottom:0px;          margin:0px;
                left: 5%;          right: 55%;
                position: absolute;          padding-left: 40px;
        padding-top:8%;          padding-right:5%;
        background-color:transparent;          font-family:Merriweather;
                color:#563F31;          font-size:18px;          text-
align:justify;          line-height:32px;
margin:auto; overflow:hidden; }
        .myButton{          border: none;          text-align:
center;          cursor: pointer;          text-transform: uppercase;
                outline: none;          overflow: hidden;
color: #fff;          font-weight: 700;          font-size: 12px;
          background-color: #22a8ee;          padding: 10px 15px;
          margin: 0 auto;
                box-shadow: 0 5px 15px rgb(34, 168, 238);
                }
 .predictimg{        background-
image:url({{url_for('static',filename="images/7.jfif")}});
        background-repeat:no-repeat;          background-size: cover;
                background-position:center;          background-
attachment:absolute;
 height:100%; margin-top:49.6%; text-align:center; } #showcase{
height:300px;  margin-bottom:20px;
} html {
  scroll-behavior: smooth;
}
#main{
 float:center; color: #22a8ee; width:100%; padding:0 30px; padding-
top:7%; box-sizing: border-box; font-family:Georgia, serif; text-
align:center;
}
```

```
#sidebar{ float:right; width:50%; background-color: transparent; color: #22a8ee; font-family:Georgia, serif; padding-left:0px;  padding-right:0px;  padding-top:1px;  box-sizing: border-box;
}
.img-preview {     width: 300px;     height: 300px;     position: relative;     border: 5px solid #F8F8F8;     box-shadow: 0px 2px 4px 0px rgba(0, 0, 0, 0.1);     margin-top: 1em;     margin-bottom: 1em;
}

.img-preview>div {     width: 100%;     height: 100%;     background-size: 300px 300px;     background-repeat: no-repeat;     background-position: center;
}

input[type="file"] {     display: none;
}
.upload-label{     display: inline-block;     padding: 12px 30px;     background: #22a8ee;     color: #fff;     font-size: 1em;     transition: all .4s;     cursor: pointer;  font-weight:bold;
}

.upload-label:hover{     background: #3A3A3A;     color: white; font-weight:bold;
}

.loader {     border: 8px solid #f3f3f3; /* Light grey */     border-top: 8px solid #22a8ee;     border-radius: 50%;     width: 50px;     height: 50px;     animation: spin 1s linear infinite;
}

@keyframes spin {
   0% { transform: rotate(0deg); }
   100% { transform: rotate(360deg); }
}
                </style>
 </head>
 <body>
```

```
                <div class="header">D-Naturalist</div>
                <div class="second">
   <div class="inside">D-Naturalist creating a web application which uses a deep learning model, trained on different species of birds, flowers , animals , marine animal , plants and get the prediction of the user image is been given.

<br><br>
                <section id="showcase">
                <br>
                <div style="margin-left:32.5%">
                <a href="{{ url_for('register')}}"><button type="button" class="myButton"
>REGISTRATION</button></a>
                <br><br>
       <a href="{{ url_for('login')}}"><button type="button" class="myButton" >BIODIVERSITY
SCRUTINIZE</button></a>

                </div>
                </div>
                </section>

                </div>

 <script> window.onscroll = function() {myFunction()};

$(document).ready(function () {
   // Init
   $('.image-section').hide();
   $('.loader').hide();
   $('#result').hide();

   // Upload Preview     function readURL(input) {         if (input.files && input.files[0]) {             var reader = new FileReader();
reader.onload = function (e) {
            $('#imagePreview').css('background-image', 'url(' + e.target.result + ')');
            $('#imagePreview').hide();
            $('#imagePreview').fadeIn(650);
```

```
            }
            reader.readAsDataURL(input.files[0]);
        }
    }
    $("#imageUpload").change(function () {
        $('.image-section').show();
        $('#btn-predict').show();
        $('#result').text('');        $('#result').hide();        readURL(this);
    });

    // Predict
    $('#btn-predict').click(function () {
        var form_data = new FormData($('#upload-file')[0]);

        // Show loading animation
        $(this).hide();
        $('.loader').show();

        // Make prediction by calling api /predict
        $.ajax({            type: 'POST',            url: '/predict',            data:
form_data,            contentType: false,            cache:  false,
processData: false,            async: true,            success: function (data) {
                // Get and display the result
                $('.loader').hide();
                $('#result').fadeIn(600);                $('#result').text('Prediction:
'+data);                console.log('Success!');
            },
        });
    });

});
</script>



 </body>
</html>
```

GIT-HUB LINK:

https://github.com/IBM-EPBL/IBM-Project-11236-1659282676

DEMO VIDEO:

https://github.com/IBM-EPBL/IBM-Project-11236-1659282676/blob/main/IBM/Final%20Deliverables/Demo%20video/2022-11-19-22-25-51.mp4