PROJECT DEVELOPMENT PHASE

SPRINT-4 SOURCE CODE

Date	19 November 2022
Team ID	PNT2022TMID42852
Project Name	Digital Naturalist – AI Enabled Tools for Biodiversity Researchers

Digital.html

```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"></script>
  <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;
```

```css
            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.jpg")}});
            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;
```

```css
                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.jpg")}});
                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:30px;
}
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{
```

```css
    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;
}
```

```css
.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="#section2"><button type="button" class="myButton"
>BIODIVERSITY SCRUTINIZE</button></a>
        </div>
        </div>
        </section>

        </div>

        <div class="predictimg" id="section2" >
            <section id="main">
        <div style="text-align:left;width:100%;padding-left:56%;">
```

```html
        <p><h3 style=font-size:25px> Click on Specify and Sync the
image...<br><br></h3></p>

    </div>

        </section>
        <div style="margin-top:0%;padding-top:0%;padding-left:40%;font-
family:Georgia, serif;width:100%;">
                <div>
                        <h4 style=font-size:19px>Upload your image</h4>
            <form action = "http://localhost:5000/" id="upload-file" method="post"
enctype="multipart/form-data">
                    <label for="imageUpload" class="upload-label">
                        Specify.....
                    </label>
                    <input type="file" name="image" id="imageUpload"
accept=".png, .jpg, .jpeg">
                    </form>


                <div class="image-section"  style="display:none;padding-left:35%;">
                    <div class="img-preview">
                            <div id="imagePreview">
                            </div>
                    </div>
                    </div>
                <div class="image-section"  style="display:none;">
                    <div>
                            <button type="button" class="btn btn-lg upload-label"
id="btn-predict">foresee!</button>
                    </div>
                </div>

                <div class="loader"  style="display:none;"></div>
                <div  style="width:70%;text-align:justify;margin-left:20%;">
                <h4>
                    <span id="result"> </span>
                </h4></div>

    </div>

    </div></div>
    <script>
```

```javascript
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>
```

App.py

```python
from __future__ import division, print_function
import os
import numpy as np
import tensorflow as tf
from tensorflow.keras.preprocessing import image
from tensorflow.keras.models import load_model
from flask import Flask, request, render_template
from werkzeug.utils import secure_filename


global graph
#graph=tf.get_default_graph()
# Define a flask app
app = Flask(__name__)
model = load_model('nature1.h5')


print('Model loaded. Check http://127.0.0.1:5000/')
```

```python
@app.route('/', methods=['GET'])
def index():
    # Main page
    return render_template('digital.html')


@app.route('/predict', methods=['GET', 'POST'])
def upload():
    if request.method == 'POST':
        # Get the file from post request
        f = request.files['image']

        # Save the file to ./uploads
        basepath = os.path.dirname(__file__)
        file_path = os.path.join(
            basepath, 'uploads', secure_filename(f.filename))
        f.save(file_path)
        img = image.load_img(file_path, target_size=(64,64))

        x = image.img_to_array(img)
        x = np.expand_dims(x, axis=0)

        #with graph.as_default():
        preds = np.argmax(model.predict(x))
        found = ["animal- badger",
            "animal- bat",
            "animal- bear",
            "animal- bee",
            "animal- dolphin",
            "animal- donkey",
            "animal- dragonfly",
            "animal- duck",
            "animal- eagle",
            "animal- elephant",
            "animal- flamingo",
            "animal- fly",
            "animal- fox",
            "animal- gallina",
            "animal- gatto",
            "animal- hedgehog",
            "animal- hippopotamus",
            "animal- hornbill",
```

```python
                "animal-  horse",
                "animal- hummingbird"]
        print(preds)
        text = found[preds]
        return text


if __name__ == '__main_':
    app.run(threaded = False)
```