#### PROJECT DEVELOPMENT PHASE SPRINT 4

#### Index.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
href="https://cdn.jsdelivr.net/npm/bootstrap@5.2.2/dist/css/bootstrap.min.cs
    rel="stylesheet"
integrity="sha384-Zenh87qX5JnK2J10vWa8Ck2rdkQ2Bzep5IDxbcnCeuOxjzrPF/et3URy9B
v1WTRi"
    crossorigin="anonymous"
  <title>Home</title>
</head>
<body>
  <nav class="navbar navbar-expand-lg navbar-dark bg-dark">
    <div class="container-fluid">
      <div></div>
      <div class="collapse navbar-collapse d-flex" id="navbarScroll">
        <l
          class="navbar-nav me-auto my-2 my-1g-0 navbar-nav-scroll"
          style="--bs-scroll-height: 100px"
```

```
<a class="nav-link active" aria-current="page"</pre>
href="/">Skinnovation</a>
        <div class="d-flex" role="search">
        <l
          class="navbar-nav me-auto my-2 my-1g-0 navbar-nav-scroll"
          style="--bs-scroll-height: 100px"
          <a class="nav-link active" aria-current="page"</pre>
href="/">Home</a>
          <a class="nav-link" href="/login">login</a>
          <a class="nav-link" href="/register">Register</a>
          <a class="nav-link" href="/prediction">Prediction</a>
          </div>
     </div>
   </div>
  </nav>
  <img src="/static/skin-problem.jpg" height="1200" width="1500" alt="Skin</pre>
Disease" srcset="" />
```

Now a day's people are suffering from skin diseases, More than 125 million people suffering from Psoriasis also skin cancer rate is rapidly increasing over the last few decades especially Melanoma is most diversifying skin cancer. If skin diseases are not treated at an earlier stage, then it may lead to complications in the body including spreading of the infection from one individual to the other. The skin diseases can be prevented by investigating the infected region at an early stage. The characteristic of the skin images is diversified so that it is a challenging job to devise an efficient and robust algorithm for automatic detection of skin disease and its severity. Skin tone and skin colour play an important role in skin disease detection. Colour and coarseness of skin are visually different. Automatic processing of such images for skin analysis requires quantitative discriminator to differentiate the diseases.

To overcome the above problem we are building a model which is used for the prevention and early detection of skin cancer, psoriasis. Basically, skin disease diagnosis depends on the different characteristics like colour, shape, texture etc. Here the person can capture the images of skin and then the image will be sent the trained model. The model analyses the image and detect whether the person is having skin disease or not.

<h1 class="head">Proposed Solution</h1>

Different skin disorders can be detected by just submitting photographs, and this approach is quite effective at helping people in the community identify ailments earlier.

Our return on investment will be the creation and distribution of a proprietary product that will be used as a solution.

This system is more scalable because it accepts any picture type, regardless of resolution, and

```
</div>
</body>
<!-- JavaScript Bundle with Popper -->
<script
```

offers good performance in any situation.

### Login.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" />
  <title>Login</title>
  link
href="https://cdn.jsdelivr.net/npm/bootstrap@5.2.2/dist/css/bootstrap.min.cs
s"
    rel="stylesheet"
integrity="sha384-Zenh87qX5JnK2J10vWa8Ck2rdkQ2Bzep5IDxbcnCeuOxjzrPF/et3URy9B
v1WTRi"
    crossorigin="anonymous"
  />
</head>
<style>
  .wrapper {
    margin-top: 80px;
    margin-bottom: 80px;
```

```
.form-signin {
 max-width: 380px;
 padding: 15px 35px 45px;
 margin: 0 auto;
 background-color: #fff;
 border: 1px solid rgba(0, 0, 0, 0.1);
.form-signin .form-signin-heading,
.form-signin .checkbox {
 margin-bottom: 30px;
.form-signin .checkbox {
 font-weight: normal;
.form-signin .form-control {
 position: relative;
 font-size: 16px;
 height: auto;
 padding: 10px;
 -webkit-box-sizing: border-box;
 -moz-box-sizing: border-box;
 box-sizing: border-box;
.form-signin .form-control:focus {
 z-index: 2;
.form-signin input[type="text"] {
 margin-bottom: -1px;
```

```
border-bottom-left-radius: 0;
   border-bottom-right-radius: 0;
 .form-signin input[type="password"] {
   margin-bottom: 20px;
   border-top-left-radius: 0;
   border-top-right-radius: 0;
</style>
<body>
 <nav class="navbar navbar-expand-lg navbar-dark bg-dark">
   <div class="container-fluid">
     <div></div>
     <div class="collapse navbar-collapse d-flex" id="navbarScroll">
       <l
        class="navbar-nav me-auto my-2 my-1g-0 navbar-nav-scroll"
         style="--bs-scroll-height: 100px"
         <a class="nav-link active" aria-current="page" href="/"</pre>
            >Skinnovation</a
         <div class="d-flex" role="search">
         <l
          class="navbar-nav me-auto my-2 my-lg-0 navbar-nav-scrol1"
           style="--bs-scroll-height: 100px"
```

```
<a class="nav-link" aria-current="page" href="/">Home</a>
        <a class="nav-link active" href="/login">login</a>
        <a class="nav-link" href="/register">Register</a>
        <a class="nav-link" href="/prediction">Prediction</a>
        </div>
   </div>
 </div>
</nav>
<div class="wrapper">
 <form class="form-signin" method="POST">
   <h2 class="form-signin-heading text-center">Please login</h2>
   <input
    type="text"
     class="form-control"
    name="username"
     placeholder="Email Address"
    required=""
     autofocus=""
   />
   <input
     type="password"
     class="form-control"
     name="password"
     placeholder="Password"
```

```
required=""
      <div class="text-center">
      <button class="btn btn-lg btn-primary btn-block" type="submit">
        Login
      </button>
  </div>
<div>
  <a href="/register">Don't have account ? </a>
</div>
  </form>
  </div>
</body>
<script
src="https://cdn.jsdelivr.net/npm/bootstrap@5.2.2/dist/js/bootstrap.bundle.m
in.js"
integrity="sha384-OERcA2EqjJCMA+/3y+gxIOqMEjwtxJY7qPCqsdltbNJuaOe923+mo//f6V
8Qbsw3"
  crossorigin="anonymous"
></script>
</html>
```

## Logout.html

```
<meta name="viewport" content="width=device-width, initial-scale=1.0" />
  <title>Logout</title>
  link
href="https://cdn.jsdelivr.net/npm/bootstrap@5.2.2/dist/css/bootstrap.min.cs
s"
    rel="stylesheet"
integrity="sha384-Zenh87qX5JnK2J10vWa8Ck2rdkQ2Bzep5IDxbcnCeuOxjzrPF/et3URy9B
v1WTRi"
    crossorigin="anonymous"
</head>
<body>
  <nav class="navbar navbar-expand-lg navbar-dark bg-dark">
    <div class="container-fluid">
      <div></div>
      <div class="collapse navbar-collapse d-flex" id="navbarScroll">
        ul
          class="navbar-nav me-auto my-2 my-lg-0 navbar-nav-scroll"
          style="--bs-scroll-height: 100px"
          <a class="nav-link active" aria-current="page" href="/"</pre>
             >Skinnovation</a
          <div class="d-flex" role="search">
          <l
            class="navbar-nav me-auto my-2 my-lg-0 navbar-nav-scroll"
            style="--bs-scroll-height: 100px"
```

```
<a class="nav-link" aria-current="page" href="/">Home</a>
          <a class="nav-link active" href="/login">login</a>
          <a class="nav-link" href="/register">Register</a>
          <a class="nav-link" href="/prediction">Prediction</a>
          </div>
     </div>
   </div>
  </nav>
  <div class="row">
        <div class="col text-center">
            <h3>Successfully logged out</h3>
            <a class="btn btn-dark" href="/login" > login </a>
        </div>
  </div>
</body>
<script
src="https://cdn.jsdelivr.net/npm/bootstrap@5.2.2/dist/js/bootstrap.bundle.m
in.js"
```

## prediction.html

```
<nav class="navbar navbar-expand-lg navbar-dark bg-dark">
href="/">Skinnovation</a>
        <a class="nav-link " aria-current="page"</pre>
href="/">Home</a>
           href="/prediction">Prediction</a>
```

```
<div class="row">
AI-based localization and classification of skin disease with
erythema</h1>
```

Nowadays people are suffering from skin diseases, More than 125 million people suffering from Psoriasis also skin cancer rate is rapidly increasing over the last few decades especially Melanoma is most diversifying skin cancer. If skin diseases are not treated at an earlier stage, then it may lead to complications in the body including spreading of the infection from one individual to the other. The skin diseases can be prevented by investigating the infected region at an early stage. The characteristic of the skin images is diversified so that it is a challenging job to devise an efficient and robust algorithm for automatic detection of skin disease and its severity. Skin tone and skin colour play an important role in skin disease detection. Colour and coarseness of skin are visually different. Automatic processing of such images for skin analysis requires quantitative discriminator to differentiate the diseases.

```
</div>
           <img class="d-block"</pre>
src="https://img.graphicsurf.com/2020/06/Woman-in-a-protective-mask-again
st-the-virus-concept.jpg" alt="Second slide" style="width:80%!important;
align:center; padding-left:100px">
enctype="multipart/form-data">
Me! For a Demo </a>
                     </form>
<script
src="https://cdn.jsdelivr.net/npm/bootstrap@5.2.2/dist/js/bootstrap.bundl
e.min.js"
integrity="sha384-OERcA2EqjJCMA+/3y+gxIOqMEjwtxJY7qPCqsdltbNJuaOe923+mo//
f6V8Qbsw3"
crossorigin="anonymous"
></script>
```

## register.html

```
<!DOCTYPE html>
<html lang="en">
href="https://cdn.jsdelivr.net/npm/bootstrap@5.2.2/dist/css/bootstrap.min
y9Bv1WTRi"
```

```
max-width: 380px;
```

```
.form-signin input[type="text"] {
```

```
<ul
      <div class="wrapper">
```

```
required
```

## Python code to train:

import re import numpy as np import os

from flask import Flask, app,request,render\_template import sys
from flask import Flask, request, render\_template, redirect, url\_for
import argparse from tensorflow import keras from PIL import Image
from timeit import default\_timer as timer import test
from pyngrok import ngrok import pandas as pd import numpy as np
import random

```
def get parent dir(n=1):
  """ returns the n-th parent dicrectory of the current working
               current path =
os.path.dirname(os.path.abspath( file )) for k in range(n):
current path = os.path.dirname(current path)
                                              return current path
src path=r'/content/drive/MyDrive/IBM PROJECT/yolo structure/2
Training/src' print(src path)
utils path=r'/content/drive/MyDrive/IBM PROJECT/yolo structure/
Utils' print(utils path)
sys.path.append(src_path)
sys.path.append(utils path)
import argparse
from keras yolo3.yolo import YOLO, detect video
from PIL import Image
from timeit import default timer as timer
from utils import load extractor model, load features, parse input,
detect object import test import utils import pandas as pd import
numpy as np
from Get File Paths import GetFileList import random
os.environ["TF CPP MIN LOG LEVEL"] = "3"
# Set up folder names for default values
```

```
data folder = os.path.join(get parent dir(n=1), "volo structure",
"Data")
image folder = os.path.join(data folder, "Source Images")
image test folder = os.path.join(image folder, "Test Images")
detection results folder = os.path.join(image folder,
"Test Image Detection Results") detection results file =
os.path.join(detection results folder, "Detection Results.csv")
model folder = os.path.join(data folder, "Model Weights")
model weights = os.path.join(model folder,
"trained weights final.h5") model classes =
os.path.join(model folder, "data classes.txt")
anchors path = os.path.join(src path, "keras yolo3", "model data",
"yolo anchors.txt")
FLAGS = None
from cloudant.client import Cloudant
# Authenticate using an IAM API key
client = Cloudant.iam('ef7f4729-2486-45c5-a7fa-f4140373e2e6-
```

```
bluemix','6GfFjs3engXLnSJB8Kp4fbs7HTKwrJpWJE7wNPGzZPV
W', connect=True)
# Create a database using an initialized client my database =
client.create database('my database')
app=Flask( name ) port no=5000
ngrok.set auth token("2H7aM94zEuTa40t3J6jKpIqWAc3 B2UxzZs
6qxetntgadxQW") public url = ngrok.connect(port no).public url
print(f"To acces the Gloable link please click {public url}")
#default home page or route
@app.route('/') def index(): return render template('index.html')
(a)app.route('/index.html') def home():
                                       return
render template("index.html")
#registration page @app.route('/register') def register():
                                                        return
render template('register.html')
@app.route('/afterreg', methods=['POST']) def afterreg(): x = [x \text{ for } ]
x in request.form.values()]
                            print(x)
                                      data = {
```

```
' id': x[1], # Setting id is optional
  'name': x[0],
  'psw':x[2]
  }
  print(data)
  query = {'_id': {'$eq': data['_id']}}
  docs = my database.get query result(query) print(docs)
  print(len(docs.all()))
  if(len(docs.all())==0):
    url = my database.create document(data)
    #response = requests.get(url)
    return render template('register.html', pred="Registration"
Successful, please login using your details")
    return render template('register.html', pred="You are already a
member, please login using your details")
#login page @app.route('/login') def login():
                                             return
render_template('login.html')
@app.route('/afterlogin',methods=['POST']) def afterlogin():
request.form[' id'] passw = request.form['psw'] print(user,passw)
```

```
query = {' id': {'$eq': user}}
  docs = my database.get query result(query) print(docs)
  print(len(docs.all()))
  if(len(docs.all())==0):
                             return render template('login.html',
pred="The username is not found.")
                                       else:
if((user==docs[0][0]['_id'] and passw==docs[0][0]['psw'])):
       return redirect(url for('prediction'))
                                                 else:
       print('Invalid User')
(a)app.route('/logout') def logout():
                                    return
render template('logout.html')
@app.route('/prediction') def prediction():
render template('prediction.html',path="../static/img/6623.jpg",)
@app.route('/result',methods=["GET","POST"]) def res():
  # Delete all default flags
  parser =
argparse.ArgumentParser(argument_default=argparse.SUPPRESS)
  ** ** **
  Command line options
  111111
```

```
f.save("./drive/MyDrive/IBM PROJECT/Flask/static/img/"+f.filena
me)
  parser.add_argument( "--input_path", type=str,
    default=image test folder,
    help="Path to image/video directory. All subdirectories will be
included. Default is "
                         + image test folder,
  )
  parser.add argument(
    "--output", type=str,
    default=detection results folder,
    help="Output path for detection results. Default is "
detection results folder,
  )
  parser.add_argument( "--no_save_img", default=False,
action="store true",
    help="Only save bounding box coordinates but do not save
output images with annotated boxes. Default is False.",
  )
```

f = request.files['file']

```
parser.add argument(
    "--file types", "--names-list", nargs="*",
default=[],
    help="Specify list of file types to include. Default is --file types
.jpg .jpeg .png .mp4",
  )
  parser.add argument( "--yolo model", type=str,
dest="model path", default=model weights,
    help="Path to pre-trained weight files. Default is " +
model weights,
  )
  parser.add argument(
    "--anchors",
    type=str,
    dest="anchors path", default=anchors path,
    help="Path to YOLO anchors. Default is " + anchors path,
  )
  parser.add argument(
    "--classes", type=str, dest="classes_path",
default=model classes,
    help="Path to YOLO class specifications. Default is " +
model classes,
  )
```

```
parser.add argument(
    "--gpu num", type=int, default=1, help="Number of GPU to
use. Default is 1"
  )
  parser.add argument( "--confidence", type=float,
dest="score", default=0.25,
    help="Threshold for YOLO object confidence score to show
predictions. Default is 0.25.",
  )
  parser.add_argument( "--box_file", type=str,
dest="box",
    default=detection results file,
    help="File to save bounding box results to. Default is "
detection results file,
  )
  parser.add argument(
    "--postfix", type=str, dest="postfix",
default=" disease",
    help='Specify the postfix for images with bounding boxes.
Default is " disease",
  )
```

```
yolo = YOLO(
    **{
      "model_path": FLAGS.model_path,
      "anchors path": FLAGS.anchors path,
       "classes_path": FLAGS.classes_path,
       "score": FLAGS.score,
       "gpu num": FLAGS.gpu num,
      "model image_size": (416, 416),
img_path="/drive/MyDrive/IBM_PROJECT/Flask/static/img/"+f.file
       prediction, image,lat,lon= detect_object(
name
                                                     yolo,
img path,
                                  save img path=FLAGS.output,
      save img=save img,
postfix=FLAGS.postfix,
  )
  yolo.close session()
                        return
render template('prediction.html',prediction=str(prediction),path="../
static/img/"+f.filename)
""" Running our application """ if __name__ == "__main__":
  app.run(port=port no)
```

# **Running application:**



Landing page

Skinnovation Home login Register Prediction



# **Login Page**

Skinnovation Home login Register Prediction



kinnovation Home login Register **Prediction** 

#### SKINALYTICS- Al-based localization and classification of skin disease with erythema

Nowadays people are suffering from skin diseases, More than 125 million people suffering from Psoriasis also skin cancer rate is rapidly increasing over the last few decades especially Melanoma is most diversifying skin cancer. If skin diseases are not treated at an earlier stage, then it may lead to complications in the body including spreading of the infection from one individual to the other. The skin diseases can be prevented by investigating the infected region at an early stage. The characteristic of the skin images is diversified so that it is a challenging job to devise an efficient and robust algorithm for automatic detection of skin disease and its everity. Skin tone and skin colour play an important role in skin disease detection. Colour and coarseness of skin are visually different. Automatic processing of such images for skin analysis requires quantitative discriminator to differentiate the diseases.



**Prediction Page**