**app.py**

from flask import Flask

from flask import request,render\_template,redirect,url\_for,session,g

import os

from flask import Flask, render\_template, send\_from\_directory, request, jsonify

import utlis

import time

import lstm

import csv

import pandas as pd

app=Flask(\_\_name\_\_,static\_url\_path="/")

app.config['SECRET\_KEY']="sjkhdwiuhdo2j"#第三方扩展都会用到的秘钥配置。

@app.before\_request

def before\_request():

users = utlis.get\_data()

g.user=None

if 'user\_id' in session:

user=[u for u in users if u.id==int(session['user\_id'])][0]

g.user=user

@app.route("/login",methods=['GET','POST'])

def login():

print(request.values.get("user"))

if request.method=='POST':

users = utlis.get\_data()

#登录操作

session.pop('user\_id',None)

username=request.form.get("username",None)

password = request.form.get("password", None)

user=[user for user in users if user.username==username]

if len(user)>0:

user=user[0]

return redirect(url\_for('upload\_test'))

return render\_template("login.html")

@app.route("/zhuce",methods=['GET','POST'])

def zhuce():

if request.method=='POST':

#注册操作

username=request.form.get("username",None)

password = request.form.get("password", None)

utlis.insert\_user(username,password)

return redirect(url\_for('login'))

return render\_template("zhuce.html")

@app.route("/xiugai",methods=['GET','POST'])

def xiugai():

if request.method=='POST':

#注册操作

username=request.form.get("username",None)

password = request.form.get("password", None)

utlis.user\_alter(password,username)

#print(username,password)

return redirect(url\_for('login'))

return render\_template("xiugai.html")

# 具有上传功能的页面

@app.route('/upload')

def upload\_test():

return render\_template('upload.html')

# 显示结果的页面

@app.route('/uoload1')

def uoload1():

acc,auc,predictions=lstm.println()

return render\_template('uoload1.html',auc=auc,acc=acc,predictions=predictions)

# 显示结果2的页面

@app.route('/upload2')

def upload2():

predictions=lstm.println2()

return render\_template('upload2.html',predictions=predictions)

#print(users)

@app.route("/logout")

def logout():

session.pop("user\_id", None)

return redirect(url\_for('login'))

@app.route('/time')

def gettime():

return gettime.get\_time()

UPLOAD\_FOLDER = 'upload'

app.config['UPLOAD\_FOLDER'] = UPLOAD\_FOLDER # 设置文件上传的目标文件夹

basedir = os.path.abspath(os.path.dirname(\_\_file\_\_)) # 获取当前项目的绝对路径

ALLOWED\_EXTENSIONS = set(['txt', 'png', 'jpg', 'xls', 'JPG', 'PNG', 'csv', 'gif', 'GIF']) # 允许上传的文件后缀

# 判断文件是否合法

def allowed\_file(filename):

return '.' in filename and filename.rsplit('.', 1)[1] in ALLOWED\_EXTENSIONS

def shangchuan(f):

file\_dir = os.path.join(basedir, app.config['UPLOAD\_FOLDER']) # 拼接成合法文件夹地址

if not os.path.exists(file\_dir):

os.makedirs(file\_dir)

@app.route('/api/upload', methods=['POST'], strict\_slashes=False)

def api\_upload():

file\_dir = os.path.join(basedir, app.config['UPLOAD\_FOLDER']) # 拼接成合法文件夹地址

if not os.path.exists(file\_dir):

os.makedirs(file\_dir) # 文件夹不存在就创建

f2 = request.files['myfile2']

if f2 and allowed\_file(f2.filename): # 判断是否是允许上传的文件类型

f2name = f2.filename

ext = f2name.rsplit('.', 1)[1] # 获取文件后缀

new\_filename2 = '2' + '.' + ext # 修改文件名

f2.save(os.path.join(file\_dir, new\_filename2)) # 保存文件到upload目录

return redirect(url\_for('uoload1'))

else:

return jsonify({"errno": 100, "errmsg": "上传失败"})

@app.route('/api/upload2', methods=['POST'], strict\_slashes=False)

def api\_upload2():

mylist = list()

for i in range(24):

mylist.append(request.form.get("feature"+str(i+1)));

print(mylist)

file\_old = 'upload/2.csv'

file = 'upload/2\_2.csv'

def add\_friend(mylist, mylist2, file\_old, file):

with open(file\_old, 'a', newline='', encoding='utf-8-sig') as fapp:

writer = csv.writer(fapp)

writer.writerow(mylist)

with open(file, 'a', newline='', encoding='utf-8-sig') as fapp:

writer = csv.writer(fapp)

writer.writerow(mylist2)

mylist2 = [0]

add\_friend(mylist, mylist2, file\_old, file)

return redirect(url\_for('upload2'))

# file download

@app.route("/download/<path:filename>")

def downloader(filename):

dirpath = os.path.join(app.root\_path, 'upload') # 这里是下在目录，从工程的根目录写起，比如你要下载static/js里面的js文件，这里就要写“static/js”

# return send\_from\_directory(dirpath, filename, as\_attachment=False) # as\_attachment=True 一定要写，不然会变成打开，而不是下载

return send\_from\_directory(dirpath, filename, as\_attachment=True) # as\_attachment=True 下载

if \_\_name\_\_=="\_\_main\_\_":

app.run()

**templates/login.html**

<!DOCTYPE html>

<html lang="en">

<head>

<title>基于LSTM的蛋白质核酸热点残基预测系统</title>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1">

<!--===============================================================================================-->

<link rel="icon" type="image/png" href="images/icons/favicon.ico" />

<!--===============================================================================================-->

<link rel="stylesheet" type="text/css" href="vendor/bootstrap/css/bootstrap.min.css">

<!--===============================================================================================-->

<link rel="stylesheet" type="text/css" href="fonts/font-awesome-4.7.0/css/font-awesome.min.css">

<!--===============================================================================================-->

<link rel="stylesheet" type="text/css" href="fonts/Linearicons-Free-v1.0.0/icon-font.min.css">

<!--===============================================================================================-->

<link rel="stylesheet" type="text/css" href="vendor/animate/animate.css">

<!--===============================================================================================-->

<link rel="stylesheet" type="text/css" href="vendor/css-hamburgers/hamburgers.min.css">

<!--===============================================================================================-->

<link rel="stylesheet" type="text/css" href="vendor/animsition/css/animsition.min.css">

<!--===============================================================================================-->

<link rel="stylesheet" type="text/css" href="vendor/select2/select2.min.css">

<!--===============================================================================================-->

<link rel="stylesheet" type="text/css" href="vendor/daterangepicker/daterangepicker.css">

<!--===============================================================================================-->

<link rel="stylesheet" type="text/css" href="css/util.css">

<link rel="stylesheet" type="text/css" href="css/main.css">

<!--===============================================================================================-->

</head>

<body>

<div class="limiter">

<div class="container-login100">

<div class="wrap-login100">

<div class="login100-form-title" style="background-image: url(images/bg-02.jpg);">

<span class="login100-form-title-1">

热点预测工具

</span>

</div>

<form class="login100-form validate-form" method="post" action="#">

<div class="wrap-input100 validate-input m-b-26" data-validate="用户名必填">

<span class="label-input100">用户名</span>

<input class="input100" type="text" name="username" autocomplete="off">

<span class="focus-input100"></span>

</div>

<div class="wrap-input100 validate-input m-b-18" data-validate="密码必填">

<span class="label-input100">密码</span>

<input class="input100" type="password" name="password" autocomplete="off">

<span class="focus-input100"></span>

</div>

<div class="flex-sb-m w-full p-b-30">

<div class="contact100-form-checkbox">

</div>

<div>

<a href="{{url\_for('xiugai')}}" class="txt1">

忘记密码？

</a>

<a href="{{url\_for('zhuce')}}">注册</a>

</div>

</div>

<div class="container-login100-form-btn">

<button class="login100-form-btn">

登录

</button>

</div>

</form>

</div>

</div>

</div>

<!--===============================================================================================-->

<script src="vendor/jquery/jquery-3.2.1.min.js"></script>

<!--===============================================================================================-->

<script src="vendor/animsition/js/animsition.min.js"></script>

<!--===============================================================================================-->

<script src="vendor/bootstrap/js/popper.js"></script>

<script src="vendor/bootstrap/js/bootstrap.min.js"></script>

<!--===============================================================================================-->

<script src="vendor/select2/select2.min.js"></script>

<!--===============================================================================================-->

<script src="vendor/daterangepicker/moment.min.js"></script>

<script src="vendor/daterangepicker/daterangepicker.js"></script>

<!--===============================================================================================-->

<script src="vendor/countdowntime/countdowntime.js"></script>

<!--===============================================================================================-->

<script src="js/main.js"></script>

</body>

</html>

**templates/uoload1.html**

<!DOCTYPE html>

<html lang="en">

<head>

<title>结果展示页面：zpp</title>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1">

<!--===============================================================================================-->

<link rel="icon" type="image/png" href="images/icons/favicon.ico" />

<!--===============================================================================================-->

<link rel="stylesheet" type="text/css" href="vendor/bootstrap/css/bootstrap.min.css">

<!--===============================================================================================-->

<link rel="stylesheet" type="text/css" href="fonts/font-awesome-4.7.0/css/font-awesome.min.css">

<!--===============================================================================================-->

<link rel="stylesheet" type="text/css" href="fonts/Linearicons-Free-v1.0.0/icon-font.min.css">

<!--===============================================================================================-->

<link rel="stylesheet" type="text/css" href="vendor/animate/animate.css">

<!--===============================================================================================-->

<link rel="stylesheet" type="text/css" href="vendor/css-hamburgers/hamburgers.min.css">

<!--===============================================================================================-->

<link rel="stylesheet" type="text/css" href="vendor/animsition/css/animsition.min.css">

<!--===============================================================================================-->

<link rel="stylesheet" type="text/css" href="vendor/select2/select2.min.css">

<!--===============================================================================================-->

<link rel="stylesheet" type="text/css" href="vendor/daterangepicker/daterangepicker.css">

<!--===============================================================================================-->

<link rel="stylesheet" type="text/css" href="css/util.css">

<link rel="stylesheet" type="text/css" href="css/main.css">

<!--===============================================================================================-->

</head>

<body>

<div class="limiter">

<div class="container-login100">

<div class="wrap-login100">

<div class="login100-form-title" style="background-image: url(images/bg-02.jpg);">

<span class="login100-form-title-1">

热点预测工具

</span>

</div>

<form class="login100-form validate-form" method="post" action="uoload1">

<div class="wrap-input100 validate-input m-b-18" data-validate="">

<span class="label-input100">predictions</span>

<input class="input100" type="password" name="password" autocomplete="off">

<td>{{ predictions}}</td>

<span class="focus-input100"></span>

</div>

<div class="flex-sb-m w-full p-b-30">

<div class="contact100-form-checkbox">

</div>

<div>

</div>

</div>

<div class="container-login100-form-btn">

</div>

</form>

</div>

</div>

</div>

<!--===============================================================================================-->

<script src="vendor/jquery/jquery-3.2.1.min.js"></script>

<!--===============================================================================================-->

<script src="vendor/animsition/js/animsition.min.js"></script>

<!--===============================================================================================-->

<script src="vendor/bootstrap/js/popper.js"></script>

<script src="vendor/bootstrap/js/bootstrap.min.js"></script>

<!--===============================================================================================-->

<script src="vendor/select2/select2.min.js"></script>

<!--===============================================================================================-->

<script src="vendor/daterangepicker/moment.min.js"></script>

<script src="vendor/daterangepicker/daterangepicker.js"></script>

<!--===============================================================================================-->

<script src="vendor/countdowntime/countdowntime.js"></script>

<!--===============================================================================================-->

<script src="js/main.js"></script>

</body>

</html>

**templates/upload.html**

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<title>Title</title>

<style>

.title {

border-top: 0.005rem solid #ebebeb;

border-bottom: 0;

display: -webkit-box;

display: -ms-flexbox;

display: flex;

-webkit-box-align: center;

-ms-flex-align: center;

align-items: center;

-webkit-box-pack: start;

-ms-flex-pack: start;

justify-content: flex-start;

height: 0.44rem;

padding: 0 0.16rem;

font-weight: 500;

font-size: 1rem;

line-height: 0.44rem;

background: #fff;

}

.title::before {

content: "";

width: 5px;

height: 20px;

background: #3e8f3e;

margin-right: 10px;

}

.content {

padding: 0.06rem 0.16rem;

}

.content p {

font-size: 13px;

margin: 5px 0;

}

.pox {

left: 60px;

}

.tabtop13 {

margin-top: 13px;

}

.tabtop13 td{

background-color:#ffffff;

height:25px;

line-height:150%;

}

.font-center{ text-align:center}

.btbg{background:#a8bf8f !important;}

.btbg1{background:#f2fbfe !important;}

.btbg2{background:#f3f3f3 !important;}

.biaoti{

font-family: 微软雅黑;

font-size: 26px;

font-weight: bold;

border-bottom:1px dashed #CCCCCC;

color: #1abc9c;

}

.titfont {

font-family: 微软雅黑;

font-size: 16px;

font-weight: bold;

color: #d6c560;

linear-gradient(135deg,#184e68,#57ca85);

}

.tabtxt2 {

font-family: 微软雅黑;

font-size: 14px;

font-weight: bold;

text-align: right;

padding-right: 10px;

color:#327cd1;

}

.tabtxt3 {

font-family: 微软雅黑;

font-size: 14px;

padding-left: 15px;

color: #000;

margin-top: 10px;

margin-bottom: 10px;

line-height: 20px;

}

</style>

</head>

<body>

<form id="form1" method="post" action="/api/upload" enctype="multipart/form-data">

<p id="contrainer" align="center">

<div>

<img src="images/校徽.png"/>

<img src="images/bk.png" style="height: 176px;" align="right"/>

</div>

<div style="width: auto;height: 40px; background: #3e8f3e" ></div>

<p class="title titfont" >使用方法一：我们在这里提供了一个蛋白质-核酸复合物文件<a href="https://wwz.lanzouj.com/ibDQ9052ab8h">样本数据.csv</a>下载并用作本网络服务器的示例用例。用户可以将其用作输入csv格式文件，格式按使用方法二所示。</p>

<p class="title titfont">1则表示是热点残基，0则表示是非热点残基；本模型的ACC=0.72，AUC=0.70</p>

<form method="post" action="login">

<table width="100%" border="0" cellspacing="1" cellpadding="4" bgcolor="#cccccc" class="tabtop13" align="center">

<tr>

<td class="btbg2 font-center " ><input id="File1" type="file" name="myfile2"/></td>

<td class="btbg2 font-center " >样本的特征值数据</td>

<td class="btbg2 font-center "><input type="submit" class="tabtxt2" ></td>

</tr>

</table>

</form>

</form>

<form id="form2" method="post" action="/api/upload2" enctype="multipart/form-data">

<p class="title titfont"> 使用方法二：输入相应的特征数据值，提交后等待响应结果</p>

<div class="content">

<form method="post" action="login">

<table width="100%" border="0" cellspacing="1" cellpadding="4" bgcolor="#cccccc" class="tabtop13" align="center">

<tr>

<td width="10%" class="btbg font-center " >序号</td>

<td width="10%" class="btbg font-center " >特征名</td>

<td width="10%" class="btbg font-center " >特征说明</td>

<td width="10%" class="btbg font-center " >数值</td>

</tr>

<tr>

<td class="btbg2">1</td>

<td class="btbg2">Eigenvector-centrality</td>

<td class="btbg2">Eigenvector centrality index </td>

<td class="btbg2"><input class="btbg2" id="tz1" type="feature" name="feature1"></td>

</tr>

<tr>

<td class="btbg2">2</td>

<td class="btbg2">All-atoms-ABS</td>

<td class="btbg2">Bound total absolute ASA </td>

<td class="btbg2"><input class="btbg2" id="tz1" type="feature" name="feature2"></td>

</tr>

<tr>

<td class="btbg2">3</td>

<td class="btbg2">All-atoms-REL</td>

<td class="btbg2">Bound total relative ASA </td>

<td class="btbg2"><input class="btbg2" id="tz1" type="feature" name="feature3"></td>

</tr>

<tr>

<td class="btbg2">4</td>

<td class="btbg2">Total-Side-ABS</td>

<td class="btbg2">Bound side-chain absolute ASA </td>

<td class="btbg2"><input class="btbg2" id="tz1" type="feature" name="feature4"></td>

</tr>

<tr>

<td class="btbg2">5</td>

<td class="btbg2">Total-Side-REL</td>

<td class="btbg2">Bound side-chain relative ASA </td>

<td class="btbg2"><input class="btbg2" id="tz1" type="feature" name="feature5"></td>

</tr>

<tr>

<td class="btbg2">6</td>

<td class="btbg2">d-All-atoms-ABS</td>

<td class="btbg2">Change in total absolute ASA upon complexation </td>

<td class="btbg2"><input class="btbg2" id="tz1" type="feature" name="feature6"></td>

</tr>

<tr>

<td class="btbg2">7</td>

<td class="btbg2">d-All-atoms-REL</td>

<td class="btbg2">Change in total relative ASA upon complexation </td>

<td class="btbg2"><input class="btbg2" id="tz1" type="feature" name="feature7"></td>

</tr>

<tr>

<td class="btbg2">8</td>

<td class="btbg2">d-Total-Side-ABS</td>

<td class="btbg2">Change in side-chain absolute ASA upon complexation</td>

<td class="btbg2"><input class="btbg2" id="tz1" type="feature" name="feature8"></td>

</tr>

<tr>

<td class="btbg2">9</td>

<td class="btbg2">d-Total-Side-REL</td>

<td class="btbg2">Change in side-chain relative ASA upon complexation </td>

<td class="btbg2"><input class="btbg2" id="tz1" type="feature" name="feature9"></td>

</tr>

<tr>

<td class="btbg2">10</td>

<td class="btbg2">p-p-All-atoms-ABS</td>

<td class="btbg2">Interfacial neighborhood property 1 based on total absolute ASA</td>

<td class="btbg2"><input class="btbg2" id="tz1" type="feature" name="feature10"></td>

</tr>

<tr>

<td class="btbg2">11</td>

<td class="btbg2">d-p-All-atoms-ABS</td>

<td class="btbg2">Interfacial neighborhood property 2 based on change in total absolute ASA upon complexation </td>

<td class="btbg2"><input class="btbg2" id="tz1" type="feature" name="feature11"></td>

</tr>

<tr>

<td class="btbg2">12</td>

<td class="btbg2">p-p-All-atoms-REL</td>

<td class="btbg2">Interfacial neighborhood property 1 based on total relative ASA</td>

<td class="btbg2"><input class="btbg2" id="tz1" type="feature" name="feature12"></td>

</tr>

<tr>

<td class="btbg2">13</td>

<td class="btbg2">d-p-All-atoms-REL</td>

<td class="btbg2">Interfacial neighborhood property 2 based on change in total relative ASA upon complexation </td>

<td class="btbg2"><input class="btbg2" id="tz1" type="feature" name="feature13"></td>

</tr>

<tr>

<td class="btbg2">14</td>

<td class="btbg2">p-p-Total-Side-ABS</td>

<td class="btbg2">Interfacial neighborhood property 1 based on side-chain absolute ASA </td>

<td class="btbg2"><input class="btbg2" id="tz1" type="feature" name="feature14"></td>

</tr>

<tr>

<td class="btbg2">15</td>

<td class="btbg2">d-p-Total-Side-ABS</td>

<td class="btbg2">Interfacial neighborhood property 2 based on change in side-chain absolute ASA upon complexation </td>

<td class="btbg2"><input class="btbg2" id="tz1" type="feature" name="feature15"></td>

</tr>

<tr>

<td class="btbg2">16</td>

<td class="btbg2">p-p-Total-Side-REL</td>

<td class="btbg2">Interfacial neighborhood property 1 based on side-chain relative ASA </td>

<td class="btbg2"><input class="btbg2" id="tz1" type="feature" name="feature16"></td>

</tr>

<tr>

<td class="btbg2">17</td>

<td class="btbg2">d-p-Total-Side-REL</td>

<td class="btbg2">Interfacial neighborhood property 2 based on change in side-chain relative ASA upon complexation</td>

<td class="btbg2"><input class="btbg2" id="tz1" type="feature" name="feature17"></td>

</tr>

<tr>

<td class="btbg2">18</td>

<td class="btbg2">donor-num</td>

<td class="btbg2">The number of hydrogen bond donor residues </td>

<td class="btbg2"><input class="btbg2" id="tz1" type="feature" name="feature18"></td>

</tr>

<tr>

<td class="btbg2">19</td>

<td class="btbg2">p-Total-Side-REL</td>

<td class="btbg2">Relative change in side-chain relative ASA upon complexation</td>

<td class="btbg2"><input class="btbg2" id="tz1" type="feature" name="feature19"></td>

</tr>

<tr>

<td class="btbg2">20</td>

<td class="btbg2">p-Total-Side-ABS</td>

<td class="btbg2">Relative change in side-chain absolute ASA upon complexation </td>

<td class="btbg2"><input class="btbg2" id="tz1" type="feature" name="feature20"></td>

</tr>

<tr>

<td class="btbg2">21</td>

<td class="btbg2">p-All-atoms-ABS</td>

<td class="btbg2">Relative change in total absolute ASA upon complexation </td>

<td class="btbg2"><input class="btbg2" id="tz1" type="feature" name="feature21"></td>

</tr>

<tr>

<td class="btbg2">22</td>

<td class="btbg2">p-All-atoms-REL</td>

<td class="btbg2">Relative change in total relative ASA upon complexation </td>

<td class="btbg2"><input class="btbg2" id="tz1" type="feature" name="feature22"></td>

</tr>

<tr>

<td class="btbg2">23</td>

<td class="btbg2">PSI</td>

<td class="btbg2">IUPAC peptide backbone torsion angles PSI </td>

<td class="btbg2"><input class="btbg2" id="tz1" type="feature" name="feature23"></td>

</tr>

<tr>

<td class="btbg2">24</td>

<td class="btbg2">SPIDER2\_hsb\_CN</td>

<td class="btbg2">Half-sphere Cα-Cβ contact numbers </td>

<td class="btbg2"><input class="btbg2" id="tz1" type="feature" name="feature24"></td>

</tr>

</table>

<p align="center"><input type="submit" class="tabtxt2" ></p>

</form>

</div>

</form>

</body>

</html>

**templates/upload2.html**

<!DOCTYPE html>

<html lang="en">

<head>

<title>结果展示页面：zpp</title>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1">

<!--===============================================================================================-->

<link rel="icon" type="image/png" href="images/icons/favicon.ico" />

<!--===============================================================================================-->

<link rel="stylesheet" type="text/css" href="vendor/bootstrap/css/bootstrap.min.css">

<!--===============================================================================================-->

<link rel="stylesheet" type="text/css" href="fonts/font-awesome-4.7.0/css/font-awesome.min.css">

<!--===============================================================================================-->

<link rel="stylesheet" type="text/css" href="fonts/Linearicons-Free-v1.0.0/icon-font.min.css">

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<link rel="stylesheet" type="text/css" href="vendor/animate/animate.css">

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<link rel="stylesheet" type="text/css" href="vendor/css-hamburgers/hamburgers.min.css">

<!--===============================================================================================-->

<link rel="stylesheet" type="text/css" href="vendor/animsition/css/animsition.min.css">

<!--===============================================================================================-->

<link rel="stylesheet" type="text/css" href="vendor/select2/select2.min.css">

<!--===============================================================================================-->

<link rel="stylesheet" type="text/css" href="vendor/daterangepicker/daterangepicker.css">

<!--===============================================================================================-->

<link rel="stylesheet" type="text/css" href="css/util.css">

<link rel="stylesheet" type="text/css" href="css/main.css">

<!--===============================================================================================-->

</head>

<body>

<div class="limiter">

<div class="container-login100">

<div class="wrap-login100">

<div class="login100-form-title" style="background-image: url(images/bg-02.jpg);">

<span class="login100-form-title-1">

热点预测工具

</span>

</div>

<form class="login100-form validate-form" method="post" action="uoload2">

<div class="wrap-input100 validate-input m-b-18" data-validate="">

<span class="label-input100">predictions</span>

<input class="input100" type="password" name="password" autocomplete="off">

<td>{{ predictions}}</td>

<span class="focus-input100"></span>

</div>

<div class="flex-sb-m w-full p-b-30">

<div class="contact100-form-checkbox">

</div>

<div>

</div>

</div>

<div class="container-login100-form-btn">

</div>

</form>

</div>

</div>

</div>

<!--===============================================================================================-->

<script src="vendor/jquery/jquery-3.2.1.min.js"></script>

<!--===============================================================================================-->

<script src="vendor/animsition/js/animsition.min.js"></script>

<!--===============================================================================================-->

<script src="vendor/bootstrap/js/popper.js"></script>

<script src="vendor/bootstrap/js/bootstrap.min.js"></script>

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<script src="vendor/select2/select2.min.js"></script>

<!--===============================================================================================-->

<script src="vendor/daterangepicker/moment.min.js"></script>

<script src="vendor/daterangepicker/daterangepicker.js"></script>

<!--===============================================================================================-->

<script src="vendor/countdowntime/countdowntime.js"></script>

<!--===============================================================================================-->

<script src="js/main.js"></script>

</body>

</html>

**templates/xiugai.html**

<!DOCTYPE html>

<html lang="en">

<head>

<title>基于LSTM的蛋白质核酸热点残基预测系统</title>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1">

<!--===============================================================================================-->

<link rel="icon" type="image/png" href="images/icons/favicon.ico" />

<!--===============================================================================================-->

<link rel="stylesheet" type="text/css" href="vendor/bootstrap/css/bootstrap.min.css">

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<link rel="stylesheet" type="text/css" href="vendor/daterangepicker/daterangepicker.css">

<!--===============================================================================================-->

<link rel="stylesheet" type="text/css" href="css/util.css">

<link rel="stylesheet" type="text/css" href="css/main.css">

<!--===============================================================================================-->

</head>

<body>

<div class="limiter">

<div class="container-login100">

<div class="wrap-login100">

<div class="login100-form-title" style="background-image: url(images/bg-02.jpg);">

<span class="login100-form-title-1">

热点预测工具：修改密码

</span>

</div>

<form class="login100-form validate-form" method="post" action="#">

<div class="wrap-input100 validate-input m-b-26" data-validate="用户名必填">

<span class="label-input100">用户名</span>

<input class="input100" type="text" name="username" autocomplete="off">

<span class="focus-input100"></span>

</div>

<div class="wrap-input100 validate-input m-b-18" data-validate="密码必填">

<span class="label-input100">密码</span>

<input class="input100" type="password" name="password" autocomplete="off">

<span class="focus-input100"></span>

</div>

<div class="container-login100-form-btn">

<button class="login100-form-btn">

修改

</button>

</div>

</form>

</div>

</div>

</div>

<!--===============================================================================================-->

<script src="vendor/jquery/jquery-3.2.1.min.js"></script>

<!--===============================================================================================-->

<script src="vendor/animsition/js/animsition.min.js"></script>

<!--===============================================================================================-->

<script src="vendor/bootstrap/js/popper.js"></script>

<script src="vendor/bootstrap/js/bootstrap.min.js"></script>

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<script src="vendor/daterangepicker/moment.min.js"></script>

<script src="vendor/daterangepicker/daterangepicker.js"></script>

<!--===============================================================================================-->

<script src="vendor/countdowntime/countdowntime.js"></script>

<!--===============================================================================================-->

<script src="js/main.js"></script>

</body>

</html>

**templates/zhuce.html**

<!DOCTYPE html>

<html lang="en">

<head>

<title>基于LSTM的蛋白质核酸热点残基预测系统</title>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1">

<!--===============================================================================================-->

<link rel="icon" type="image/png" href="images/icons/favicon.ico" />

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<link rel="stylesheet" type="text/css" href="vendor/bootstrap/css/bootstrap.min.css">

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<link rel="stylesheet" type="text/css" href="vendor/animsition/css/animsition.min.css">

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<link rel="stylesheet" type="text/css" href="vendor/select2/select2.min.css">

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<link rel="stylesheet" type="text/css" href="vendor/daterangepicker/daterangepicker.css">

<!--===============================================================================================-->

<link rel="stylesheet" type="text/css" href="css/util.css">

<link rel="stylesheet" type="text/css" href="css/main.css">

<!--===============================================================================================-->

</head>

<body>

<div class="limiter">

<div class="container-login100">

<div class="wrap-login100">

<div class="login100-form-title" style="background-image: url(images/bg-02.jpg);">

<span class="login100-form-title-1">

热点预测工具：注册

</span>

</div>

<form class="login100-form validate-form" method="post" action="#">

<div class="wrap-input100 validate-input m-b-26" data-validate="用户名必填">

<span class="label-input100">用户名</span>

<input class="input100" type="text" name="username" autocomplete="off">

<span class="focus-input100"></span>

</div>

<div class="wrap-input100 validate-input m-b-18" data-validate="密码必填">

<span class="label-input100">密码</span>

<input class="input100" type="password" name="password" autocomplete="off">

<span class="focus-input100"></span>

</div>

<div class="container-login100-form-btn">

<button class="login100-form-btn">

注册

</button>

</div>

</form>

</div>

</div>

</div>

<!--===============================================================================================-->

<script src="vendor/jquery/jquery-3.2.1.min.js"></script>

<!--===============================================================================================-->

<script src="vendor/animsition/js/animsition.min.js"></script>

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<script src="vendor/bootstrap/js/popper.js"></script>

<script src="vendor/bootstrap/js/bootstrap.min.js"></script>

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<script src="vendor/select2/select2.min.js"></script>

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<script src="vendor/daterangepicker/moment.min.js"></script>

<script src="vendor/daterangepicker/daterangepicker.js"></script>

<!--===============================================================================================-->

<script src="vendor/countdowntime/countdowntime.js"></script>

<!--===============================================================================================-->

<script src="js/main.js"></script>

</body>

</html>

**lstm.py**

import numpy as np

import pandas as pd

import torch

import os

import math

import sys

sys.path #查看sys.path

sys.path.append("")

import numpy as np

import tensorflow as tf# Version 1.0.0 (some previous versions are used in past commits)

from sklearn import metrics

from sklearn import svm, datasets

from sklearn.metrics import roc\_curve, auc ###计算roc和auc

import torch.nn.functional as F

os.environ['KMP\_DUPLICATE\_LIB\_OK']='True'

from torch import nn

import matplotlib.pyplot as plt

data\_csv=pd.read\_csv('upload/1.csv')

data\_csvlabel\_csv=pd.read\_csv('upload/1\_1.csv')

test\_csv=pd.read\_csv('upload/2.csv')

test\_csvlabel\_csv=pd.read\_csv('upload/2\_2.csv')

#plt.plot(data\_csv)

#plt.ylabel('Eigenvector-centrality（特征向量中心维度）')

#plt.xlabel('POS')

#plt.show()

# 数据预处理

dataset = data\_csv.values # 获得csv的值

testset = test\_csv.values # 获得csv的值

datasetlabel=data\_csvlabel\_csv.values

testsetlabel=test\_csvlabel\_csv.values

#plt.plot(data\_csv)

#plt.ylabel('Eigenvector-centrality（特征向量中心维度）')

#plt.xlabel('POS')

#plt.show()

#设置X,Y数据集。以look\_back=24为准，取前24个特征为数组，形成data\_X,取最后一pos个作为预测值，形成data\_Y，完成训练集的提取。

# 划分训练集和测试集，70% 作为训练集

train\_X = dataset

train\_Y = datasetlabel

test\_X = testset

test\_Y = testsetlabel

#设置LSTM能识别的数据类型，形成tran\_X的24维1个参数的数组，train\_Y的一维一个参数的数组。并转化为tensor类型

train\_X = train\_X.reshape(-1, 1, 24)#train\_X = train\_X.reshape(-1, 24, 1)

train\_Y = train\_Y.reshape(-1, 1, 1)

test\_X = test\_X.reshape(-1, 1, 24)

test\_Y=test\_Y.reshape(-1,1,1)

train\_Y=np.asarray(train\_Y).astype('float32')

test\_Y=np.asarray(test\_Y).astype('float32')

train\_x = torch.FloatTensor(train\_X)

train\_y = torch.FloatTensor(train\_Y)

test\_x = torch.FloatTensor(test\_X)

test\_y=torch.FloatTensor(test\_Y)

training\_data\_count = len(train\_x)

test\_data\_count = len(test\_x)

n\_steps = len(train\_x[0])

n\_input = len(train\_x[0][0])

# LSTM神经网络的内部结构

n\_hidden = 24 # 特征维数

n\_classes = 2 # 二分类

# Training

learning\_rate = 0.0025#学习率

lambda\_loss\_amount = 0.0015#损失率

training\_iters = training\_data\_count \* 330 # Loop 300 times on the dataset 在数据集上的循环次数

batch\_size = 1000#训练次数/样本量

display\_iter =3000 # 每3000轮输出一次预测精确度

# 输入训练集和测试集的大小

print("Some useful info to get an insight on dataset's shape and normalisation:")

print("(X shape, y shape, every X's mean, every X's standard deviation)")

print(train\_x.shape)

print(test\_x.shape, test\_y.shape)

print("The dataset is therefore properly normalised, as expected, but not yet one-hot encoded.")

def LSTM\_RNN(\_X, \_weights, \_biases):

# 函数从给定的参数中返回一个LSTM ( RNN )人工神经网络。

# 此外，两个LSTM细胞堆叠在一起，增加了神经网络的深度。

# (NOTE: 通过对数据集进行一次整形，可以极大地优化该步骤

# input shape: (batch\_size, n\_steps, n\_input)

\_X = tf.transpose(\_X, [1, 0, 2])

# 重新塑造，准备输入

\_X = tf.reshape(\_X, [-1, n\_input])

# new shape: (n\_steps\*batch\_size, n\_input)

\_X = tf.nn.relu(tf.matmul(\_X, \_weights['hidden']) + \_biases['hidden'])

# 拆分数据是因为rnn单元格需要RNN内环的输入列表

\_X = tf.split(\_X, n\_steps, 0)

# new shape: n\_steps \* (batch\_size, n\_hidden)

# Define two stacked LSTM cells (two recurrent layers deep) with tensorflow

#n\_hidden特征维数；forget\_bias遗忘的偏置，默认1.0；state\_is\_tuple=True,接收和返回的是元组的形式

lstm\_cell\_1 = tf.contrib.rnn.BasicLSTMCell(n\_hidden, forget\_bias=1.0, state\_is\_tuple=True)

lstm\_cell\_2 = tf.contrib.rnn.BasicLSTMCell(n\_hidden, forget\_bias=1.0, state\_is\_tuple=True)

lstm\_cells = tf.contrib.rnn.MultiRNNCell([lstm\_cell\_1, lstm\_cell\_2], state\_is\_tuple=True)

# Get LSTM cell output

outputs, states = tf.contrib.rnn.static\_rnn(lstm\_cells, \_X, dtype=tf.float32)

#outputs=LSTM\_with\_Attention.attention(outputs, states)

# 获取“多对一”分类器最后一个时间步的输出特征

lstm\_last\_output = outputs[-1]

#lstm\_last\_output = LSTM\_with\_Attention.attention(\_X, lstm\_last\_output, states)

return tf.matmul(lstm\_last\_output, \_weights['out']) + \_biases['out']

def extract\_batch\_size(\_train, step, batch\_size):

# 函数从“( X | y ) \_ train”数据中获取“batch\_size”数据量。

shape = list(\_train.shape)

shape[0] = batch\_size

batch\_s = np.empty(shape)

for i in range(batch\_size):

# Loop index

index = ((step - 1) \* batch\_size + i) % len(\_train)

batch\_s[i] = \_train[index]

return batch\_s

def attention\_net(self, lstm\_output, final\_state):

lstm\_output = lstm\_output.permute(1, 0, 2)

hidden = final\_state.squeeze(0)

attn\_weights = torch.bmm(lstm\_output, hidden.unsqueeze(2)).squeeze(2)

soft\_attn\_weights = F.softmax(attn\_weights, 1)

new\_hidden\_state = torch.bmm(lstm\_output.transpose(1, 2),

soft\_attn\_weights.unsqueeze(2)).squeeze(2)

return new\_hidden\_state

def one\_hot(y\_, n\_classes=n\_classes):

# 函数从数量指标中编码输出标签

# e.g.:

# one\_hot(y\_=[[5], [0], [3]], n\_classes=6):

# return [[0, 0, 0, 0, 0, 1], [1, 0, 0, 0, 0, 0], [0, 0, 0, 1, 0, 0]]

y\_ = y\_.reshape(len(y\_))

return np.eye(n\_classes)[np.array(y\_, dtype=np.int32)] # Returns FLOATS

# csv input/output

x = tf.placeholder(tf.float32, [None, n\_steps, n\_input])

y = tf.placeholder(tf.float32, [None, n\_classes])

# csv weights

weights = {

'hidden': tf.Variable(tf.random\_normal([n\_input, n\_hidden])), # Hidden layer weights

'out': tf.Variable(tf.random\_normal([n\_hidden, n\_classes], mean=1.0))

}

biases = {

'hidden': tf.Variable(tf.random\_normal([n\_hidden])),

'out': tf.Variable(tf.random\_normal([n\_classes]))

}

pred = LSTM\_RNN(x, weights, biases)

# 损失、优化器和评价

l2 = lambda\_loss\_amount \* sum(

tf.nn.l2\_loss(tf\_var) for tf\_var in tf.trainable\_variables()

) # L2丢失阻止了这种神经网络对数据的过拟合，lambda\_loss\_amount损失率

cost = tf.reduce\_mean(tf.nn.softmax\_cross\_entropy\_with\_logits(labels=y, logits=pred)) + l2 # 原始的损失函数+L2正则项

optimizer = tf.train.AdamOptimizer(learning\_rate=learning\_rate).minimize(cost) # Adam 优化器

correct\_pred = tf.equal(tf.argmax(pred,1), tf.argmax(y,1))

accuracy = tf.reduce\_mean(tf.cast(correct\_pred, tf.float32))

# 对训练的表现进行跟踪

test\_losses = []

test\_accuracies = []

train\_losses = []

train\_accuracies = []

# 画图

sess = tf.InteractiveSession(config=tf.ConfigProto(log\_device\_placement=True))

init = tf.global\_variables\_initializer()

sess.run(init)

# 在每个循环执行具有‘batch\_ size’数量的示例数据的训练步骤

step = 1

while step \* batch\_size <= training\_iters:

batch\_xs = extract\_batch\_size(train\_x, step, batch\_size)

batch\_ys = one\_hot(extract\_batch\_size(train\_y, step, batch\_size))

# Fit training using batch data

\_, loss, acc = sess.run(

[optimizer, cost, accuracy],

feed\_dict={

x: batch\_xs,

y: batch\_ys

}

)

train\_losses.append(loss)

train\_accuracies.append(acc)

# Evaluate network only at some steps for faster training:

if (step \* batch\_size % display\_iter == 0) or (step == 1) or (step \* batch\_size > training\_iters):

# To not spam console, show training accuracy/loss in this "if"

# Evaluation on the test set (no learning made here - just evaluation for diagnosis)

loss, acc = sess.run(

[cost, accuracy],

feed\_dict={

x: test\_x,

y: one\_hot(test\_y)

}

)

test\_losses.append(loss)

test\_accuracies.append(acc)

step += 1

# Accuracy for test data

one\_hot\_predictions, accuracy, final\_loss = sess.run(

[pred, accuracy, cost],

feed\_dict={

x: test\_x,

y: one\_hot(test\_y)

}

)

test\_losses.append(final\_loss)

test\_accuracies.append(accuracy)

# 图片样式设置

font = {

'family' : 'Bitstream Vera Sans',

'weight' : 'bold',

'size' : 18

}

plt.rc('font', \*\*font)

width = 12

height = 12

plt.figure(figsize=(width, height))

indep\_train\_axis = np.array(range(batch\_size, (len(train\_losses)+1)\*batch\_size, batch\_size))

plt.plot(indep\_train\_axis, np.array(train\_losses), "b--", label="Train losses")

plt.plot(indep\_train\_axis, np.array(train\_accuracies), "g--", label="Train accuracies")

indep\_test\_axis = np.append(

np.array(range(batch\_size, len(test\_losses)\*display\_iter, display\_iter)[:-1]),

[training\_iters]

)

plt.plot(indep\_test\_axis, np.array(test\_losses), "b-", label="Test losses")

plt.plot(indep\_test\_axis, np.array(test\_accuracies), "g-", label="Test accuracies")

plt.title("Training session's progress over iterations")

plt.legend(loc='upper right', shadow=True)

plt.ylabel('Training Progress (Loss or Accuracy values)')

plt.xlabel('Training iteration')

#plt.show()

from sklearn.metrics import roc\_auc\_score

predictions = one\_hot\_predictions.argmax(1)

def println():

predictions = one\_hot\_predictions.argmax(1)

Acc="Testing Accuracy: {}%".format(100\*accuracy)

y\_true = (test\_y.reshape(test\_y.shape[0], test\_y.shape[1] \* test\_y.shape[2]))

AUC="Testing Auc: {}%".format(100\*roc\_auc\_score(y\_true, predictions))

print(Acc,AUC)

return Acc,AUC,predictions

def println2():

predictions = one\_hot\_predictions.argmax(1)

predictions = predictions[predictions.size-1]

return predictions

**utlis.py**

import pymysql

from dataclasses import dataclass

def get\_con():

conn = pymysql.Connect(host="127.0.0.1", port=3306, user="root", password="123", db="zpp", charset="utf8",

cursorclass=pymysql.cursors.DictCursor)

cursor=conn.cursor()

return conn,cursor

def close\_con(conn,cursor):

cursor.close()

conn.close()

def query(sql,\*args):

conn,cursor=get\_con()

cursor.execute(sql,args)

res=cursor.fetchall()#查询

print(res)

close\_con(conn,cursor)#关闭

return res

def creat(sql,val):

conn, cursor = get\_con()

cursor.execute(sql, val)

close\_con(conn, cursor) # 关闭

def insert(sql,val,\*args):

conn, cursor = get\_con()

cursor.execute(sql,val)

value=cursor.fetchall()

print(value)

conn.commit()

conn.close()

def delet():

conn,cursor=get\_con()

cursor.execute("DELETE FROM db\_table")

close\_con(conn,cursor)

def deletlagou():

conn, cursor = get\_con()

cursor.execute("DELETE FROM db\_lagou")

close\_con(conn, cursor)

def deletmaoyan():

conn, cursor = get\_con()

cursor.execute("DELETE FROM db\_maoyan")

close\_con(conn, cursor)

#db\_new

def deletnew():

conn, cursor = get\_con()

cursor.execute("DELETE FROM db\_new")

close\_con(conn, cursor)

def show():

conn, cursor = get\_con()

# get annual sales rank

sql = "select \* from db\_table"

cursor.execute(sql)

content = cursor.fetchall()

# 获取表头

sql = "SHOW FIELDS FROM db\_table"

cursor.execute(sql)

return cursor.fetchall(),content

@dataclass

class User:

id:int

username:str

password:str

def getItems():

conn, cursor = get\_con()

sql = "select \* from db\_table"

cursor.execute(sql)

items = cursor.fetchall()

print(items)

return items

def getItems\_lagou():

conn, cursor = get\_con()

sql = "select \* from db\_lagou"

cursor.execute(sql)

items = cursor.fetchall()

print(items)

return items

#db\_maoyan

def getItems\_maoyan():

conn, cursor = get\_con()

sql = "select \* from db\_maoyan"

cursor.execute(sql)

items = cursor.fetchall()

print(items)

return items

#db\_new

def getItems\_new():

conn, cursor = get\_con()

sql = "select \* from db\_new"

cursor.execute(sql)

items = cursor.fetchall()

print(items)

return items

def get\_userdata():

conn, cursor = get\_con()

sql = "select \* from tb\_user"

cursor.execute(sql)

items = cursor.fetchall()

print(items)

return items

def get\_data():

users = []

sql="SELECT \*FROM tb\_user"

res=query(sql)

for line in res:

# print(line['序号'],line['username'],line['password'])

user=User(int(line['序号']),str(line['username']),str(line['password']))

users.append(user)

return users

def creat\_table(tablename):

sql="""CREATE TABLE %s(

good VARCHAR(230),

href VARCHAR(230),

price VARCHAR(230),

review VARCHAR(230)

)"""

val=tablename

creat(sql,val)

def insert\_tabel(p\_name, detail\_url, price, p\_commit):

sql="INSERT INTO db\_table (good,href,price,review) VALUES (%s,%s,%s,%s)"

val=(p\_name, detail\_url, price, p\_commit)

insert(sql,val)

def insert\_lagou(p\_name,detail\_url,gongsi,gongzi):

sql = "INSERT INTO db\_lagou (position\_name,detail\_url,company,wages\_education) VALUES (%s,%s,%s,%s)"

val = (p\_name, detail\_url, gongsi, gongzi)

insert(sql, val)

#db\_maoyan

def insert\_maoyan(p\_name,detail\_url,movetime):

sql = "INSERT INTO db\_maoyan (movie,actor,movietime) VALUES (%s,%s,%s)"

val = (p\_name, detail\_url,movetime)

insert(sql, val)

#db\_new

def insert\_new(p\_name,detail\_url):

sql = "INSERT INTO db\_new (new\_name,new\_herf) VALUES (%s,%s)"

val = (p\_name, detail\_url)

insert(sql, val)

def insert\_user(username,passeord):

sql="INSERT INTO tb\_user (username,password) VALUES (%s,%s)"

val=(username,passeord)

insert(sql,val)

def user\_alter(password,username):

sql="UPDATE tb\_user SET PASSWORD=%s WHERE username=%s"#UPDATE tb\_user SET PASSWORD='12' WHERE username='zpp'

val=(password,username)

#print(sql,val)

conn, cursor = get\_con()

result = cursor.execute(sql, val)

#print(result)

conn.commit()

cursor.close()

conn.close()

def user\_delet(username):

sql="DELETE FROM tb\_user WHERE username=%s"#UPDATE tb\_user SET PASSWORD='12' WHERE username='zpp'

val=(username)

#print(sql,val)

conn, cursor = get\_con()

result = cursor.execute(sql, val)

#print(result)

conn.commit()

cursor.close()

conn.close()

if \_\_name\_\_=="\_\_main\_\_":

user\_delet('qw')