

**Universidade Federal de Uberlândia**  
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**Primeiro trabalho de Arquitetura de Software Aplicada**

Criação do website de uma loja de smartphones no back-end e front-end utilizando  
Flask, Docker, PostgreSQL, Bootstrap, Jinja2, Virtual Environment.

**Uberlândia**

**11/2019**

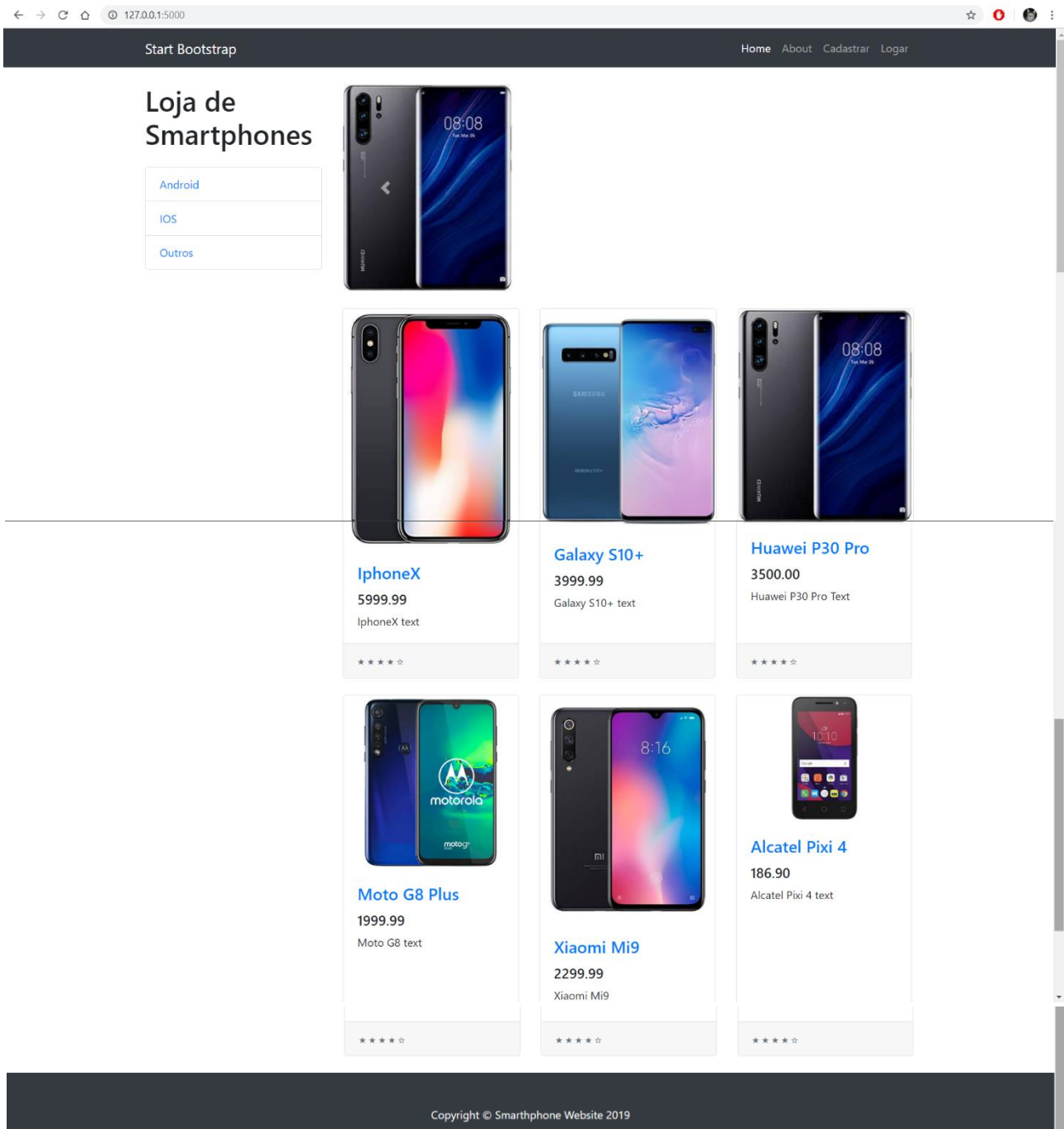
## Sumário

1. O website .....	3
2. Funcionamento interno (Backend) .....	5
3. Arquivos Puros.....	14
App.py .....	14
DbUtils.py .....	17
Index.html.....	19
About.html .....	22
cadastro.html.....	25
login.html .....	28
4. Link Repositório GitHub .....	31

## 1. O website

É um arquivo html dinâmico que envia requisições para o servidor Flask, em uma virtual enviroment local, e recebe dados do banco de dados postgresql, situado em um container do Docker, por meio do sqlalchemy, além de páginas personalizadas com o Jinja2.

O website apresentado é uma loja de smartphones online, que apresenta os produtos na página inicial, com seus respectivos nomes, preços, imagens e descrições, com elementos de design providos do bootstrap, como tela dinâmica, que mostra diferentes imagens automaticamente.



Apresenta também outras páginas como o About, Cadastro e Login, ambos os últimos funcionais.

# Loja de Smartphones

Android

IOS

Outros

# Sobre Nós

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ut nunc porttitor sapien iaculis bibendum. Duis rutrum ullamcorper nibh ac finibus. Morbi in pretium ligula, vel ullamcorper felis. Curabitur eleifend tortor magna, quis lacinia enim feugiat a. Vestibulum maximus tempor odio, non elementum turpis tempus et. Proin euismod finibus orci ac blandit. Duis et felis facilisis, sollicitudin mi hendrerit, iaculis eros. In sed dui tellus. In egestas vehicula justo, sed faucibus arcu faucibus at. Praesent ante ipsum, imperdiet in commodo at, volutpat mollis mi. Nulla vestibulum lectus id ipsum hendrerit, sit amet dignissim augue tempus. Nam porttitor nisl ipsum, non volutpat quam laoreet ut. Sed sed purus at lacus ultrices facilisis.

Praesent volutpat nec lorem a blandit. Aliquam erat volutpat. Vivamus vel mi augue. Curabitur sit amet purus non enim tincidunt lobortis non a dolor. Morbi in molestie urna, eu blandit ante. Sed pulvinar at tortor a placerat. Nullam vitae metus lectus.

# Loja de Smartphones

Android

IOS

Outros

Name

Name

Password

Password

Email

Email

☒ Male

☐ Female

☐ I accept the terms of Service.

Sign in

# Loja de Smartphones

Android

IOS

Outros

Email

Vinicius

Password

.....

Sign in

## 2. Funcionamento interno (Backend)

O servidor que hospeda e que responde e recebe as requisições para o navegador é o Flask, que está situado em uma Virtual Environment, chamada venv, para que utilizemos os diversos módulos do Python situados dentro da própria pasta do website, ou ambiente virtual, com a finalidade de distribuição da lógica do servidor para vários computadores e servidores ao redor do mundo.

O flask utiliza o arquivo app.py para a lógica e comunicação entre o banco de dados e o website por meio do sqlalchemy e seus endpoints.

```
app.py > ...
1  from flask import Flask, request, render_template, redirect, session, flash, url_for, abort, jsonify, json
2  from sqlalchemy import create_engine, MetaData, Table, Column, Integer, String, text, select, ForeignKey, exc
3  from flask_bootstrap import Bootstrap
4  from DbUtils import DbUtils
5  from json import dumps
6  import psycopg2
7
8  app = Flask(__name__)
9
```

EndPoints:

```
55 @app.route('/')
56 def index():
57     return render_template("index.html", products = products)
58
59 @app.route("/about")
60 def about():
61     return render_template("about.html")
62
63 @app.route("/cadastro")
64 def cadastro():
65     return render_template("cadastro.html")
66
67 @app.route("/login")
68 def login():
69     return render_template("login.html")
70
71 @app.route("/logar", methods=['POST'])
72 def logar():
73     print(request.form)
74     print(request.form['password'])
75     print(request.form['email'])
76     password = request.form['password']
77     email = request.form['email']
78     dbUtils = DbUtils()
79     res = dbUtils.selectUsers(email,password)
80     if(res):
81         print(res)
82         userReturn = None
83         for user in res:
84             userReturn = user
85             print(user)
86         if(userReturn == None):
87             return "<h1>Usuário ou senha incorretos</h1>"
88     else:
89         return "<h1>Erro ao logar</h1>"
90     return "<h1> Bem vindo " + userReturn[1] + "</h1>"
91
92 @app.route("/cadastrar", methods=['POST'])
93 def cadastrar():
94     #global users
95     print(request.form)
96     #user_data = request.get_json(force=True)
97     #print(user_data)
98     print(request.form['name'])
99     print(request.form['password'])
100    print(request.form['email'])
101    newUser = User(request.form['name'],request.form['password'],request.form['email'])
102    users.append(newUser)
103    dbUtils = DbUtils()
104    dbUtils.createTableUsers()
105    #for user in users:
106    dbUtils.addNewUser(newUser.name, newUser.password, newUser.email)
107    return "<h1>CADASTRADO</h1>"
```

## Classes Produto e Usuário (Product, User)

```
8 app = Flask(__name__)
9
10 class User:
11     def __init__(self, name, password, email):
12         self.name = name
13         self.password = password
14         self.email = email
15
16 class Product:
17     def __init__(self, Id, name, price, text, urlImage):
18         self.id = Id
19         self.name = name
20         self.price = price
21         self.text = text
22         self.urlImage = urlImage
23
24 products = []
25 users = []
26
```

## Tabelas no PostgreSQL, visualizando no PgAdmin4

### Produtos:

loja_smartphones/postgres@local						
Query Editor Query History						
1 select * from products 2 select * from products where id_usuario = 3 3 drop table products						
Data Output Explain Messages Notifications						
	id_produto [PK] integer	name character varying (64)	price character varying (16)	text character varying (1024)	urlimage character varying (256)	
1	1	IphoneX	5999.99	IphoneX text	iphoneX.jpg	
2	2	Galaxy S10+	3999.99	Galaxy S10+ text	Galaxy_S10+.jpg	
3	3	Huawei P30 Pro	3500.00	Huawei P30 Pro Text	Huawei_P30.jpg	
4	4	Moto G8 Plus	1999.99	Moto G8 text	MotoG8.jpg	
5	5	Xiaomi Mi9	2299.99	Xiaomi Mi9	XiaomiMi9.jpg	
6	6	Alcatel Pixi 4	186.90	Alcatel Pixi 4 text	AlcatelPixi4.jpg	

### Usuários:

5 select * from users 6 select * from users where (email='Maria@ufu.br' and password='161646468678487878787878')						
Data Output Explain Messages Notifications						
	id_usuario [PK] integer	name character varying (64)	password character varying (32)	email character varying (64)		
1	1	Vinicius	1618161684	viniciusredchili@gmail.com		
2	2	Vinicius	1618161684	viniciusredchili@gmail.com		
3	3	Marcio	94648646464	marcio@ufu.br		
4	4	Maria	161646468678487878787878	Maria@ufu.br		
5	5	joao	123	joao@ufu.br		
6	6	Marcio	741	marcio@ufu.com		

## Funções de importação e exportação de Produtos para o Banco de Dados

```
27 def exportProductstoBD():
28     products.append(Product(0,"IphoneX","5999.99","IphoneX text","iphoneX.jpg"))
29     products.append(Product(1,"Galaxy S10+","3999.99","Galaxy S10+ text","Galaxy_S10+.jpg"))
30     products.append(Product(2,"Huawei P30 Pro","3500.00","Huawei P30 Pro Text","Huawei_P30.jpg"))
31     products.append(Product(3,"Moto G8 Plus","1999.99","Moto G8 text","MotoG8.jpg"))
32     products.append(Product(4,"Xiaomi Mi9","2299.99","Xiaomi Mi9","XiaomiMi9.jpg"))
33     products.append(Product(5,"Alcatel Pixi 4","186.90","Alcatel Pixi 4 text","AlcatelPixi4.jpg"))
34     dbUtils = DbUtils()
35     dbUtils.createTableProducts() #Table products
36     for product in products:
37         dbUtils.addNewProduct(product.name, product.price, product.text, product.urlImage)
38
39 def importProductsFromBD():
40     dbUtils = DbUtils()
41     productsBD = dbUtils.selectProducts()
42     #while(product):
43     for product in productsBD:
44         products.append(Product(product[0],product[1],product[2],product[3],product[4]))
45         print(product)
46     print(products)
47     return 0
48
49 #exportProductstoBD()
50 importProductsFromBD()
```

Utilização do arquivo DbUtils.py como ponte de comunicação entre o servidor Flask e o banco de dados PostgreSQL.

```
DbUtils.py > DbUtils > selectUsers
1 from sqlalchemy import create_engine, MetaData, Table, Column, Integer, String, text, select, ForeignKey, exc
2
3 class DbUtils:
4     db_string = "postgresql+psycopg2://postgres:banco@localhost/loja_smartphones"
5     db_query = " "
6
7     def createTableProducts(self):
8         db = create_engine(self.db_string)
9         #self.db_query = "CREATE TABLE IF NOT EXISTS cadastro.usuarios (id_usuario SERIAL PRIMARY KEY, nome VARCHAR(60), idade INT, c
10         try:
11             db.execute("CREATE TABLE products (id_produto SERIAL PRIMARY KEY, name VARCHAR(64), price VARCHAR(16), text VARCHAR(1024)
12             res = True
13         except:
14             print("Problemas ao criar a tabela\n")
15             res = False
16         return res
17
18     def createTableUsers(self):
19         db = create_engine(self.db_string)
20         try:
21             db.execute("CREATE TABLE users (id_usuario SERIAL PRIMARY KEY, name VARCHAR(64), password VARCHAR(32), email VARCHAR(64))
22             res = True
23         except:
24             print("Problemas ao criar a tabela\n")
25             res = False
26         return res
27
28     def addNewProduct(self, name, price, text, urlImage):
29         db = create_engine(self.db_string)
30         try:
31             db.execute("INSERT INTO products(name, price, text, urlImage) VALUES (%s, %s, %s, %s)", name, price, text, urlImage)
```

```

DbUtils.py > DbUtils > addNewUser
28 def addNewProduct(self, name, price, text, urlImage):
29     db = create_engine(self.db_string)
30     try:
31         db.execute("INSERT INTO products(name, price, text, urlImage) VALUES (%s, %s, %s, %s)", name, price, text, urlImage)
32         res = True
33     except Exception as e:
34         print("Problemas ao inserir na tabela usuario\n")
35         print(e)
36         res = False
37     return res
38
39 def addNewUser(self, name, password, email):
40     db = create_engine(self.db_string)
41     try:
42         db.execute("INSERT INTO users(name, password, email) VALUES (%s, %s, %s)", name, password, email)
43         res = True
44     except Exception as e:
45         print("Problemas ao inserir na tabela usuario\n")
46         print(e)
47         res = False
48     return res
49
50 def updateProduct(self, id, name, price, text, urlImage):
51     db = create_engine(self.db_string)
52     try:
53         db.execute("UPDATE usuarios SET name=%s, price=%s, text=%s, urlImage=%s WHERE id_usuario=%s", name, price, text, urlImage, id)
54         res = True
55     except:
56         print("Problemas ao atualizar na tabela usuario\n")
57         res = False
58     return res

```

```

60 def selectProducts(self):
61     db = create_engine(self.db_string)
62     try:
63         res = db.execute("select * from products")
64     except:
65         print("Problemas em importar o produto")
66         res = False
67     return res
68
69 def selectUsers(self, email, password):
70     db = create_engine(self.db_string)
71     try:
72         #select * from users where (email='Maria@ufu.br' and password='1616464686784878787878')
73         res = db.execute("select * from users where (email=%s and password=%s)", email, password)
74     except:
75         print("Problemas em importar o produto")
76         res = False
77     return res

```



Os arquivos html são gerados por requisições que chegam aos endpoints e, utilizando as variáveis do flask e o jinja, pode-se criar páginas dinâmicas que podem seguir lógicas de programação do python como laços, decisões e valores de objetos, como produtos.

Página index.html e produtos mostrados dinamicamente com jinja2 e Bootstrap:

```
app.py DbUtils.py cadastro.html index.html X teclado.asm about.html login.html lau
templates > index.html > html > body > div.container > div.row > div.col-lg-9 > div.row > div.col-lg-4.col-md-6.mb-4 > div.card.h-100 > div.card-body > h4.card-tit
1 <!DOCTYPE html>
2 <html lang="en">
3
4 <head>
5
6 <meta charset="utf-8">
7 <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">
8 <meta name="description" content="">
9 <meta name="author" content="">
10
11 <title>Shop Homepage - Start Bootstrap Template</title>
12
13 <!-- Bootstrap core CSS -->
14 <link href="{{ url_for('static', filename='css/bootstrap.min.css') }}" rel="stylesheet">
15
16 <!-- Custom styles for this template -->
17 <link href="{{ url_for('static', filename='css/shop-homepage.css') }}" rel="stylesheet">
18
19 </head>
20
21 <body>
22
23 <!-- Navigation -->
24 <nav class="navbar navbar-expand-lg navbar-dark bg-dark fixed-top">
25 <div class="container">
26 <a class="navbar-brand" href="#">Start Bootstrap</a>
27 <button class="navbar-toggler" type="button" data-toggle="collapse" data-target="#navbarResponsive" aria-controls="navbarResponsive"
28 | <span class="navbar-toggler-icon"></span>
29 </button>
30 <div class="collapse navbar-collapse" id="navbarResponsive">
31 <ul class="navbar-nav ml-auto">
32 <li class="nav-item active">
33 <a class="nav-link" href="{{ url_for('index') }}">Home
34 | <span class="sr-only">(current)</span>
35 </a>
36 </li>
37 <li class="nav-item">
38 <a class="nav-link" href="{{ url_for('about') }}">About</a>
39 </li>
40 <li class="nav-item">
41 <a class="nav-link" href="{{ url_for('cadastro') }}">Cadastrar</a>
42 </li>
43 <li class="nav-item">
44 <a class="nav-link" href="{{ url_for('login') }}">Logar</a>
45 </li>
46 </ul>
47 </div>
48 </div>
49 </nav>
50
51 <!-- Page Content -->
52 <div class="container">
53
54 <div class="row">
55
56 <div class="col-lg-3">
57
58 <h1 class="my-4">Loja de Smartphones</h1>
59 <div class="list-group">
60 <a href="#" class="list-group-item">Android</a>
61 <a href="#" class="list-group-item">iOS</a>
62 <a href="#" class="list-group-item">Outros</a>
63 </div>
64
65 </div>
66 <!-- /.col-lg-3 -->
67
68 <div class="col-lg-9">
69
70 <div id="carouselExampleIndicators" class="carousel slide my-4" data-ride="carousel">
71 <ol class="carousel-indicators">
72 <li data-target="#carouselExampleIndicators" data-slide-to="0" class="active"></li>
73 <li data-target="#carouselExampleIndicators" data-slide-to="1"></li>
74 <li data-target="#carouselExampleIndicators" data-slide-to="2"></li>
75 </ol>
76 <div class="carousel-inner align-items-center" role="listgroup">
```

```

76     <div class="carousel-inner align-items-center" role="listbox">
77         <div class="carousel-item active">
78             
79         </div>
80         <div class="carousel-item">
81             
82         </div>
83         <div class="carousel-item">
84             
85         </div>
86     </div>
87     <a class="carousel-control-prev" href="#carouselExampleIndicators" role="button" data-slide="prev">
88         <span class="carousel-control-prev-icon" aria-hidden="true"></span>
89         <span class="sr-only">Previous</span>
90     </a>
91     <a class="carousel-control-next" href="#carouselExampleIndicators" role="button" data-slide="next">
92         <span class="carousel-control-next-icon" aria-hidden="true"></span>
93         <span class="sr-only">Next</span>
94     </a>
95 </div>

```

Bloco Importante: Criação de Layouts de produtos automaticamente usando o laço For.

```

97     <div class="row">
98         {% for product in products %}
99         <div class="col-lg-4 col-md-6 mb-4">
100             <div class="card h-100">
101                 <a href="#"></a>
102                 <div class="card-body">
103                     <h4 class="card-title">
104                         <a href="#">{{product.name}}</a>
105                     </h4>
106                     <h5>{{product.price}}</h5>
107                     <p class="card-text">{{product.text}}</p>
108                 </div>
109                 <div class="card-footer">
110                     <small class="text-muted">&#9733; &#9733; &#9733; &#9733; &#9734;</small>
111                 </div>
112             </div>
113         </div>
114         {% endfor %}
115     </div>

```

```

118     </div>
119     <!-- /.col-lg-9 -->
120
121 </div>
122 <!-- /.row -->
123
124 </div>
125 <!-- /.container -->
126
127 <!-- Footer -->
128 <footer class="py-5 bg-dark">
129     <div class="container">
130         <p class="m-0 text-center text-white">Copyright &copy; Smartphone Website 2019</p>
131     </div>
132 <!-- /.container -->
133 </footer>
134
135 <!-- Bootstrap core JavaScript -->
136 <script src="{{ url_for('static', filename='jquery/jquery.min.js') }}"></script>
137 <script src="{{ url_for('static', filename='js/bootstrap.bundle.min.js')}}"></script>
138
139 </body>
140
141 </html>
142

```

Itens importantes de outras páginas:

## About.html

```
app.py DbUtils.py cadastro.html index.html teclado.asm about.html X login.html lau
templates > about.html > html > body > div.container > div.row > div.col-lg-3 > h1.my-4
66 <!-- /.col-lg-3 -->
67 <div class="col-lg-9">
68 <br><br>
69 <h1> Sobre Nós</h1>
70 <p>Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ut nunc porttitor sapien iaculis bibendum. Duis rutrum ulla
71 <p>Praesent volutpat nec lorem a blandit. Aliquam erat volutpat. Vivamus vel mi augue. Curabitur sit amet purus non enim tinc
72 <p>Nam euismod augue in aliquet blandit. Vivamus sed odio ut urna hendrerit laoreet. Quisque quis vehicula ipsum. Vivamus imp
73 <p>Ut nibh dui, mollis porta dapibus sed, euismod ut tortor. Nam massa sapien, efficitur vitae dapibus vitae, dictum et enim.
74 <p>Donec interdum dignissim libero non interdum. Ut volutpat sem velit, eu pretium justo facilisis non. Aenean sed mattis mas
75 </div>
76 </div>
```

## Cadastro.html

```
app.py DbUtils.py cadastro.html X index.html teclado.asm about.html login.html lau
templates > cadastro.html > html > body > div.container
66 <!-- /.col-lg-3 -->
67 <form action="cadastrar" method="POST" style="padding-top: 50px;">
68 <div class="form-group row">
69 <label for="name" class="col-sm-3 col-form-label">Name</label>
70 <div class="col-sm-10">
71 <input type="name" class="form-control" name="name" id="name" placeholder="Name">
72 </div>
73 </div>
74 <div class="form-group row">
75 <label for="password" class="col-sm-3 col-form-label">Password</label>
76 <div class="col-sm-10">
77 <input type="password" class="form-control" name="password" id="password" placeholder="Password">
78 </div>
79 </div>
80 <div class="form-group row">
81 <label for="email" class="col-sm-3 col-form-label">Email</label>
82 <div class="col-sm-10">
83 <input type="email" class="form-control" name="email" id="email" placeholder="Email">
84 </div>
85 </div>
86 <fieldset class="form-group">
87 <div class="row">
88 <legend class="col-form-label col-sm-3 pt-0"></legend>
89 <div class="col-sm-10">
90 <div class="form-check">
91 <input class="form-check-input" type="radio" id="gridRadios1" value="option1" checked>
92 <label class="form-check-label" for="gridRadios1">
93 Male
94 </label>
95 </div>
96 <div class="form-check">
97 <input class="form-check-input" type="radio" name="gridRadios" id="gridRadios2" value="option2">
98 <label class="form-check-label" for="gridRadios2">
99 Female
100 </label>
101 </div>
102 </div>
```

```
103 </div>
104 </fieldset>
105 <div class="form-group row">
106 <div class="col-sm-3"></div>
107 <div class="col-sm-10">
108 <div class="form-check">
109 <input class="form-check-input" type="checkbox" id="gridCheck1">
110 <label class="form-check-label" for="gridCheck1">
111 I accept the terms of Service.
112 </label>
113 </div>
114 </div>
115 </div>
116 <div class="form-group row">
117 <div class="col-sm-10">
118 <button type="submit" class="btn btn-primary">Sign in</button>
119 </div>
120 </div>
121 </form>
122 </div>
123 <!-- /.row -->
```

## Login.html

```
app.py DbUtils.py cadastro.html index.html teclado.asm about.html login.html X lau
templates > login.html > html > body > div.container > div.row > form > div.form-group.row > label.col-sm-3.col-form-label
66 <!-- /.col-lg-3 -->
67 <form action="logar" method="POST" style="padding-top: 50px;">
68 <div class="form-group row">
69 <label for="inputEmail3" class="col-sm-3 col-form-label">Email</label>
70 <div class="col-sm-10">
71 <input type="email" class="form-control" name="email" id="inputEmail3" placeholder="Email">
72 </div>
73 </div>
74 <div class="form-group row">
75 <label for="inputPassword3" class="col-sm-3 col-form-label">Password</label>
76 <div class="col-sm-10">
77 <input type="password" class="form-control" name="password" id="inputPassword3" placeholder="Password">
78 </div>
79 </div>
80 <div class="form-group row">
81 <div class="col-sm-10">
82 <button type="submit" class="btn btn-primary">Sign in</button>
83 </div>
84 </div>
85 </form>
```

Operações no Prompt de Comando para a inicialização dos Ambientes Virtuais e instalação de recursos do Python.

### Selecionar Prompt de Comando

```
Microsoft Windows [versão 10.0.18362.476]
(c) 2019 Microsoft Corporation. Todos os direitos reservados.

C:\Users\vinic>cd Desktop

C:\Users\vinic\Desktop>cd asa

C:\Users\vinic\Desktop\ASA>cd aulas

C:\Users\vinic\Desktop\ASA\aulas>cd aula07

C:\Users\vinic\Desktop\ASA\aulas\aula07>cd venv

C:\Users\vinic\Desktop\ASA\aulas\aula07\venv>cd scripts

C:\Users\vinic\Desktop\ASA\aulas\aula07\venv\Scripts>activate

(venv) C:\Users\vinic\Desktop\ASA\aulas\aula07\venv\Scripts>cd ../../

(venv) C:\Users\vinic\Desktop\ASA\aulas\aula07>code .
```

```
(venv) C:\Users\vinic\Desktop\ASA\aulas\aula07>python -m pip install sqlalchemy
Collecting sqlalchemy
  Downloading https://files.pythonhosted.org/packages/1a/85/853f11abfccfd581b099e5ae5f2dd807cc2919745b13d14e565022fd821c/sqlalchemy-1.3.11.tar.gz (6.0MB)
    | 6.0MB 1.7MB/s
Installing collected packages: sqlalchemy
  Running setup.py install for sqlalchemy ... done
Successfully installed sqlalchemy-1.3.11
WARNING: You are using pip version 19.2.3, however version 19.3.1 is available.
You should consider upgrading via the 'python -m pip install --upgrade pip' command.

(venv) C:\Users\vinic\Desktop\ASA\aulas\aula07>python -m pip install psycpg2
Collecting psycpg2
  Downloading https://files.pythonhosted.org/packages/1a/85/853f11abfccfd581b099e5ae5f2dd807cc2919745b13d14e565022fd821c/psycpg2-2.8.4-cp37-cp37m-win_amd64.whl (1.1MB)
    | 1.1MB 1.3MB/s
Installing collected packages: psycpg2
Successfully installed psycpg2-2.8.4
WARNING: You are using pip version 19.2.3, however version 19.3.1 is available.
You should consider upgrading via the 'python -m pip install --upgrade pip' command.
```

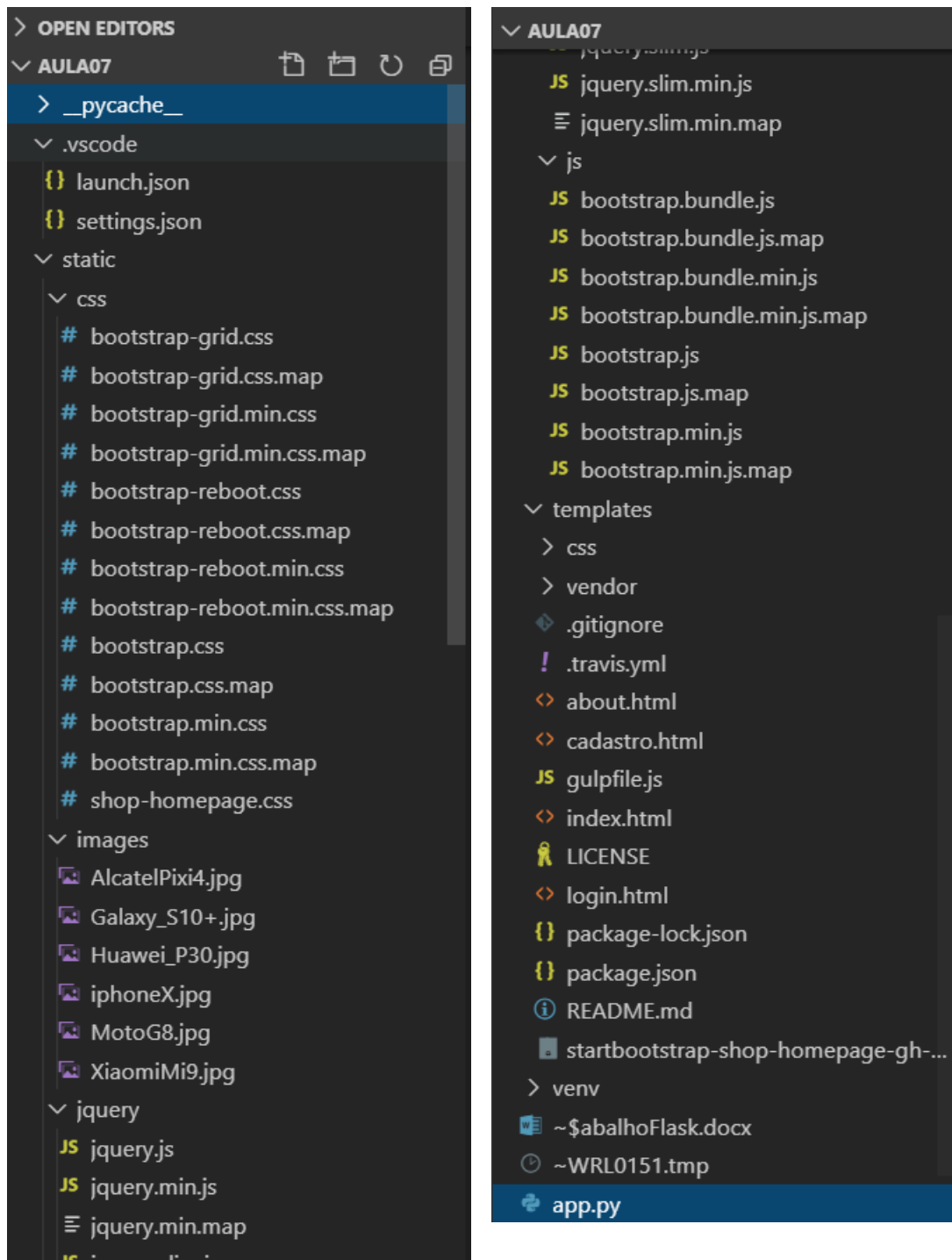
## Utilização do Docker para Iniciar o container que contém o Banco de Dados PostgreSQL.

```
(venv) C:\Users\vinic\Desktop\ASA\aulas\aula07>docker container ps -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
206c5492e593	postgres	"docker-entrypoint.s..."	2 months ago	Exited (255) 6 days ago	0.0.0.0:5432->5432/tcp	postgresql
51d909721e33	debian	"bash"	2 months ago	Exited (0) 6 weeks ago		peaceful_johnson
013e53baefbf	hello-world	"/hello"	2 months ago	Exited (0) 6 weeks ago		sad_archimedes

```
(venv) C:\Users\vinic\Desktop\ASA\aulas\aula07>docker container start 206c5492e593
206c5492e593
```

Arquivos da pasta do servidor, com todos os arquivos html, CSS, JavaScript, Python e imagens.



### 3. Arquivos Puros

#### App.py

```
from flask import Flask, request, render_template, redirect, session, flash, url_for, abort, jsonify, json
from sqlalchemy import create_engine, MetaData, Table, Column, Integer, String, text, select, ForeignKey, exc
from flask_bootstrap import Bootstrap
from DbUtils import DbUtils
from json import dumps
import psycopg2

app = Flask(__name__)

class User:
    def __init__(self, name, password, email):
        self.name = name
        self.password = password
        self.email = email

class Product:
    def __init__(self, Id, name, price, text, urlImage):
        self.id = Id
        self.name = name
        self.price = price
        self.text = text
        self.urlImage = urlImage

products = []
users = []

def exportProductstoBD():
    products.append(Product(0,"IphoneX","5999.99","IphoneX text","iphoneX.jpg"))
    products.append(Product(1,"Galaxy S10+","3999.99","Galaxy S10+ text","Galaxy_S10+.jpg"))
    products.append(Product(2,"Huawei P30 Pro","3500.00","Huawei P30 Pro Text","Huawei_P30.jpg"))
    products.append(Product(3,"Moto G8 Plus","1999.99","Moto G8 text","MotoG8.jpg"))
    products.append(Product(4,"Xiaomi Mi9", "2299.99", "Xiaomi Mi9", "XiaomiMi9.jpg"))
    products.append(Product(5,"Alcatel Pixi 4","186.90","Alcatel Pixi 4 text","AlcatelPixi4.jpg"))
    dbUtils = DbUtils()
    dbUtils.createTableProducts() #Table products
    for product in products:
        dbUtils.addNewProduct(product.name, product.price, product.text, product.urlImage)

def importProductsFromBD():
    dbUtils = DbUtils()
```

```

productsBD = dbUtils.selectProducts()
#while(product):
for product in productsBD:
    products.append(Product(product[0],product[1],product[2],product[3],product[4]))
    print(product)
print(products)
return 0

#exportProductstoBD()
importProductsFromBD()

@app.route('/')
def index():
    return render_template("index.html", products = products)

@app.route("/about")
def about():
    return render_template("about.html")

@app.route("/cadastro")
def cadastro():
    return render_template("cadastro.html")

@app.route("/login")
def login():
    return render_template("login.html")

@app.route("/logar", methods=['POST'])
def logar():
    print(request.form)
    print(request.form['password'])
    print(request.form['email'])
    password = request.form['password']
    email = request.form['email']
    dbUtils = DbUtils()
    res = dbUtils.selectUsers(email,password)
    if(res):
        print(res)
        userReturn = None
        for user in res:
            userReturn = user
            print(user)
        if(userReturn == None):
            return "<h1>Usuário ou senha incorretos</h1>"
    else:
        return "<h1>Erro ao logar</h1>"
    return "<h1> Bem vindo " + userReturn[1] + "</h1>"

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

```

```
def cadastrar():  
    #global users  
    print(request.form)  
    #user_data = request.get_json(force=True)  
    #print(user_data)  
    print(request.form['name'])  
    print(request.form['password'])  
    print(request.form['email'])  
    newUser = User(request.form['name'],request.form['password'],request.form['email'])  
    users.append(newUser)  
    dbUtils = DbUtils()  
    dbUtils.createTableUsers()  
    #for user in users:  
    dbUtils.addNewUser(newUser.name, newUser.password, newUser.email)  
    return "<h1>CADASTRADO</h1>"
```



## DbUtils.py

```
from sqlalchemy import create_engine, MetaData, Table, Column, Integer, String, text, select, ForeignKey, exc

class DbUtils:
    db_string = "postgresql+psycopg2://postgres:banco@localhost/loja_smartphones"
    db_query = " "

    def createTableProducts(self):
        db = create_engine(self.db_string)
        #self.db_query = "CREATE TABLE IF NOT EXISTS cadastro.usuarios (id_usuario SERIAL PRIMARY KEY, nome VARCHAR(60), idade INT, cidade VARCHAR(40));)"
        try:
            db.execute("CREATE TABLE products (id_produto SERIAL PRIMARY KEY, name VARCHAR(64), price VARCHAR(16), text VARCHAR(1024), urlImage VARCHAR(256));")
            res = True
        except:
            print("Problemas ao criar a tabela\n")
            res = False
        return res

    def createTableUsers(self):
        db = create_engine(self.db_string)
        try:
            db.execute("CREATE TABLE users (id_usuario SERIAL PRIMARY KEY, name VARCHAR(64), password VARCHAR(32), email VARCHAR(64));")
            res = True
        except:
            print("Problemas ao criar a tabela\n")
            res = False
        return res

    def addNewProduct(self, name, price, text, urlImage):
        db = create_engine(self.db_string)
        try:
            db.execute("INSERT INTO products(name, price, text, urlImage) VALUES (%s, %s, %s, %s)", name, price, text, urlImage)
            res = True
        except Exception as e:
            print("Problemas ao inserir na tabela usuario\n")
            print(e)
            res = False
        return res

    def addNewUser(self, name, password, email):
        db = create_engine(self.db_string)
        try:
            db.execute("INSERT INTO users(name, password, email) VALUES (%s, %s, %s)", name, password, email)
            res = True
```

```

except Exception as e:
    print("Problemas ao inserir na tabela usuario\n")
    print(e)
    res = False
return res

def updateProduct(self, id, name, price, text, urlImage):
    db = create_engine(self.db_string)
    try:
        db.execute("UPDATE usuarios SET name=%s, price=%s, text=%s, urlImage=%s WHERE
id_usuario=%s", name, price, text, urlImage, id)
        res = True
    except:
        print("Problemas ao atualizar na tabela usuario\n")
        res = False
    return res

def selectProducts(self):
    db = create_engine(self.db_string)
    try:
        res = db.execute("select * from products")
    except:
        print("Problemas em importar o produto")
        res = False
    return res

def selectUsers(self, email, password):
    db = create_engine(self.db_string)
    try:
        #select * from users where (email='Maria@ufu.br' and password='16164646867848
78787878778')
        res = db.execute("select * from users where (email=%s and password=%s)", email, password)
    except:
        print("Problemas em importar o produto")
        res = False
    return res

```

## Index.html

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

<head>

  <meta charset="utf-8">
  <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">
  <meta name="description" content="">
  <meta name="author" content="">

  <title>Shop Homepage - Start Bootstrap Template</title>
  <!-- Bootstrap core CSS -->
  <link href="{{ url_for('static', filename='css/bootstrap.min.css') }}" rel="stylesheet"
>

  <!-- Custom styles for this template -->
  <link href="{{ url_for('static', filename='css/shop-
homepage.css') }}" rel="stylesheet">

</head>

<body>

  <!-- Navigation -->
  <nav class="navbar navbar-expand-lg navbar-dark bg-dark fixed-top">
    <div class="container">
      <a class="navbar-brand" href="#">Start Bootstrap</a>
      <button class="navbar-toggler" type="button" data-toggle="collapse" data-
target="#navbarResponsive" aria-controls="navbarResponsive" aria-expanded="false" aria-
label="Toggle navigation">
        <span class="navbar-toggler-icon"></span>
      </button>
      <div class="collapse navbar-collapse" id="navbarResponsive">
        <ul class="navbar-nav ml-auto">
          <li class="nav-item active">
            <a class="nav-link" href="{{ url_for('index') }}">Home
              <span class="sr-only">(current)</span>
            </a>
          </li>
          <li class="nav-item">
            <a class="nav-link" href="{{ url_for('about') }}">About</a>
          </li>
          <li class="nav-item">
            <a class="nav-link" href="{{ url_for('cadastro') }}">Cadastrar</a>
          </li>
          <li class="nav-item">
            <a class="nav-link" href="{{ url_for('login') }}">Logar</a>
          </li>
        </ul>
      </div>
    </div>
  </nav>
```

```

</nav>

<!-- Page Content -->
<div class="container">

    <div class="row">

        <div class="col-lg-3">

            <h1 class="my-4">Loja de Smartphones</h1>
            <div class="list-group">
                <a href="#" class="list-group-item">Android</a>
                <a href="#" class="list-group-item">IOS</a>
                <a href="#" class="list-group-item">Outros</a>
            </div>

        </div>
        <!-- /.col-lg-3 -->

        <div class="col-lg-9">

            <div id="carouselExampleIndicators" class="carousel slide my-4" data-
ride="carousel">
                <ol class="carousel-indicators">
                    <li data-target="#carouselExampleIndicators" data-slide-
to="0" class="active"></li>
                    <li data-target="#carouselExampleIndicators" data-slide-to="1"></li>
                    <li data-target="#carouselExampleIndicators" data-slide-to="2"></li>
                </ol>
                <div class="carousel-inner align-items-center" role="listbox">
                    <div class="carousel-item active">
                        
                    </div>
                    <div class="carousel-item">
                        
                    </div>
                    <div class="carousel-item">
                        
                    </div>
                </div>
                <a class="carousel-control-
prev" href="#carouselExampleIndicators" role="button" data-slide="prev">
                    <span class="carousel-control-prev-icon" aria-hidden="true"></span>
                    <span class="sr-only">Previous</span>
                </a>
            </div>
        </div>
    </div>
</div>

```

```

        <a class="carousel-control-
next" href="#carouselExampleIndicators" role="button" data-slide="next">
            <span class="carousel-control-next-icon" aria-hidden="true"></span>
            <span class="sr-only">Next</span>
        </a>
    </div>

    <div class="row">
        {% for product in products %}
        <div class="col-lg-4 col-md-6 mb-4">
            <div class="card h-100">
                <a href="#"></a>
                <div class="card-body">
                    <h4 class="card-title">
                        <a href="#">{{product.name}}</a>
                    </h4>
                    <h5>{{product.price}}</h5>
                    <p class="card-text">{{product.text}}</p>
                </div>
                <div class="card-footer">
                    <small class="text-muted">&#9733; &#9733; &#9733; &#9733; &#9734;</small>
                </div>
            </div>
        </div>
        {% endfor %}
    </div>
    <!-- /.row -->

</div>
<!-- /.col-lg-9 -->

</div>
<!-- /.row -->

</div>
<!-- /.container -->

<!-- Footer -->
<footer class="py-5 bg-dark">
    <div class="container">
        <p class="m-0 text-center text-white">Copyright &copy; Smarthphone Website 2019</p>
    </div>
    <!-- /.container -->
</footer>
<!-- Bootstrap core JavaScript -->
<script src="{{ url_for('static', filename='jquery/jquery.min.js') }}"></script>
<script src="{{ url_for('static', filename='js/bootstrap.bundle.min.js')}}"></script>

</body>
</html>

```

## About.html

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

<head>

  <meta charset="utf-8">
  <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">
  <meta name="description" content="">
  <meta name="author" content="">

  <title>Shop Homepage - Start Bootstrap Template</title>

  <!-- Bootstrap core CSS -->
  <link href="{{ url_for('static', filename='css/bootstrap.min.css') }}" rel="stylesheet"
>

  <!-- Custom styles for this template -->
  <link href="{{ url_for('static', filename='css/shop-
homepage.css') }}" rel="stylesheet">

</head>

<body>

  <!-- Navigation -->
  <nav class="navbar navbar-expand-lg navbar-dark bg-dark fixed-top">
    <div class="container">
      <a class="navbar-brand" href="#">Start Bootstrap</a>
      <button class="navbar-toggler" type="button" data-toggle="collapse" data-
target="#navbarResponsive" aria-controls="navbarResponsive" aria-expanded="false" aria-
label="Toggle navigation">
        <span class="navbar-toggler-icon"></span>
      </button>
      <div class="collapse navbar-collapse" id="navbarResponsive">
        <ul class="navbar-nav ml-auto">
          <li class="nav-item active">
            <a class="nav-link" href="{{ url_for('index') }}">Home
              <span class="sr-only">(current)</span>
            </a>
          </li>
          <li class="nav-item">
            <a class="nav-link" href="{{ url_for('about') }}">About</a>
          </li>
          <li class="nav-item">
            <a class="nav-link" href="{{ url_for('cadastro') }}">Cadastrar</a>
          </li>
          <li class="nav-item">
            <a class="nav-link" href="{{ url_for('login') }}">Logar</a>
          </li>
        </ul>
      </div>
    </div>
  </nav>
```

```

    </div>
</nav>

<!-- Page Content -->
<div class="container">

    <div class="row">

        <div class="col-lg-3">

            <h1 class="my-4">Loja de Smartphones</h1>
            <div class="list-group">
                <a href="#" class="list-group-item">Android</a>
                <a href="#" class="list-group-item">IOS</a>
                <a href="#" class="list-group-item">Outros</a>
            </div>

        </div>
        <!-- /.col-lg-3 -->
        <div class="col-lg-9">
            <br><br>
            <h1> Sobre Nós</h1>
            <p>Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec ut nunc porttitor sapien iaculis bibendum. Duis rutrum ullamcorper nibh ac finibus. Morbi in pretium ligula, vel ullamcorper felis. Curabitur eleifend tortor magna, quis lacinia enim feugiat a. Vestibulum maximus tempor odio, non elementum turpis tempus et. Proin euismod finibus orci ac blandit. Duis et felis facilisis, sollicitudin mi hendrerit, iaculis eros. In sed dui tellus. In egestas vehicula justo, sed faucibus arcu faucibus at. Praesent ante ipsum, imperdiet in commodo at, volutpat mollis mi. Nulla vestibulum lectus id ipsum hendrerit, sit amet dignissim augue tempus. Nam porttitor nisl ipsum, non volutpat quam laoreet ut. Sed sed purus at lacus ultrices facilisis.</p>
            <p>Praesent volutpat nec lorem a blandit. Aliquam erat volutpat. Vivamus vel mi augue. Curabitur sit amet purus non enim tincidunt lobortis non a dolor. Morbi in molestie urna, eu blandit ante. Sed pulvinar at tortor a placerat. Nullam vitae metus lectus.</p>
            <p>Nam euismod augue in aliquet blandit. Vivamus sed odio ut urna hendrerit laoreet. Quisque quis vehicula ipsum. Vivamus imperdiet id massa ac aliquet. Morbi finibus ante sed malesuada auctor. Maecenas quam velit, consectetur vel imperdiet sed, vestibulum id est. Vestibulum commodo, erat et imperdiet accumsan, turpis tortor scelerisque nisi, ut malesuada turpis orci sit amet felis. Sed eget mauris quis eros tincidunt dignissim ultricies eget est. Fusce pulvinar orci sed nisi semper, a congue dui pellentesque. Quisque sed convallis erat. Sed quis rhoncus orci. Maecenas et pretium erat, sit amet malesuada metus. Sed posuere ornare nisl, id ultricies mi efficitur vel.</p>
            <p>Ut nibh dui, mollis porta dapibus sed, euismod ut tortor. Nam massa sapien, efficitur vitae dapibus vitae, dictum et enim. Vestibulum varius ultrices orci. Praesent metus ligula, ultricies nec ullamcorper et, pharetra at urna. Aenean blandit laoreet mattis. Proin in fermentum ipsum, vel imperdiet risus. Morbi tincidunt mi in ex malesuada, at hendrerit justo imperdiet. Curabitur fringilla erat diam, ut molestie dolor fringilla nec. Etiam metus dui, consequat et erat nec, ultricies fermentum velit. Mauris commodo ultricies magna quis faucibus.</p>
            <p>Donec interdum dignissim libero non interdum. Ut volutpat sem velit, eu pretium justo facilisis non. Aenean sed mattis massa. Sed aliquam posuere turpis, eget convallis metus faucibus in. Pellentesque in semper lacus. Mauris nibh turpis, congue eget nunc v

```

```
el, commodo porta odio. Cras venenatis augue nulla, vitae dignissim nisl sodales tempus.
Proin dignissim nunc quis magna sodales consequat. Morbi nibh odio, efficitur eu sagittis
ac, gravida non nulla. Mauris consectetur massa quam, ut malesuada ligula consequat in.
Vivamus et dictum magna. Praesent consequat posuere tellus, eu ullamcorper massa ultricie
s ac. Maecenas metus lectus, viverra vitae risus non, condimentum dictum est. Pellentesqu
e nisl urna, efficitur ac est in, auctor consequat ante. Fusce suscipit interdum urna ege
t suscipit.</p>
    </div>
</div>
<!-- /.row -->

</div>
<!-- /.container -->

<!-- Footer -->
<footer class="py-5 bg-dark">
    <div class="container">
        <p class="m-0 text-center text-white">Copyright &copy; Smarthphone Website 2019</p>
    </div>
    <!-- /.container -->
</footer>

<!-- Bootstrap core JavaScript -->
<script src="{ { url_for('static', filename='jquery/jquery.min.js') } }"></script>
<script src="{ { url_for('static', filename='js/bootstrap.bundle.min.js') } }"></script>

</body>

</html>
```



## cadastro.html

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

<head>

  <meta charset="utf-8">
  <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">
  <meta name="description" content="">
  <meta name="author" content="">

  <title>Shop Homepage - Start Bootstrap Template</title>

  <!-- Bootstrap core CSS -->
  <link href="{ { url_for('static', filename='css/bootstrap.min.css') } }" rel="stylesheet"
>

  <!-- Custom styles for this template -->
  <link href="{ { url_for('static', filename='css/shop-
homepage.css') } }" rel="stylesheet">

</head>

<body>

  <!-- Navigation -->
  <nav class="navbar navbar-expand-lg navbar-dark bg-dark fixed-top">
    <div class="container">
      <a class="navbar-brand" href="#">Start Bootstrap</a>
      <button class="navbar-toggler" type="button" data-toggle="collapse" data-
target="#navbarResponsive" aria-controls="navbarResponsive" aria-expanded="false" aria-
label="Toggle navigation">
        <span class="navbar-toggler-icon"></span>
      </button>
      <div class="collapse navbar-collapse" id="navbarResponsive">
        <ul class="navbar-nav ml-auto">
          <li class="nav-item">
            <a class="nav-link" href="{ { url_for('index') } }">Home</a>
          </li>
          <li class="nav-item">
            <a class="nav-link" href="{ { url_for('about') } }">About</a>
          </li>
          <li class="nav-item active">
            <a class="nav-link" href="{ { url_for('cadastro') } }">Cadastrar</a>
            <span class="sr-only">(current)</span>
          </li>
          <li class="nav-item">
            <a class="nav-link" href="{ { url_for('login') } }">Logar</a>
          </li>
        </ul>
      </div>
    </div>
  </nav>
```

```

        </ul>
    </div>
</div>
</nav>

<!-- Page Content -->
<div class="container">

    <div class="row">

        <div class="col-lg-4">

            <h1 class="my-4">Loja de Smartphones</h1>
            <div class="list-group">
                <a href="#" class="list-group-item">Android</a>
                <a href="#" class="list-group-item">IOS</a>
                <a href="#" class="list-group-item">Outros</a>
            </div>

        </div>
        <!-- /.col-lg-3 -->
        <form action="cadastrar" method="POST" style="padding-top: 50px;">
            <div class="form-group row">
                <label for="name" class="col-sm-3 col-form-label">Name</label>
                <div class="col-sm-10">
                    <input type="name" class="form-
control" name="name" id="name" placeholder="Name">
                </div>
            </div>
            <div class="form-group row">
                <label for="password" class="col-sm-3 col-form-label">Password</label>
                <div class="col-sm-10">
                    <input type="password" class="form-
control" name="password" id="password" placeholder="Password">
                </div>
            </div>
            <div class="form-group row">
                <label for="email" class="col-sm-3 col-form-label">Email</label>
                <div class="col-sm-10">
                    <input type="email" class="form-
control" name="email" id="email" placeholder="Email">
                </div>
            </div>
            <fieldset class="form-group">
                <div class="row">
                    <legend class="col-form-label col-sm-3 pt-0"></legend>
                    <div class="col-sm-10">
                        <div class="form-check">
                            <input class="form-check-
input" type="radio" id="gridRadios1" value="option1" checked>
                            <label class="form-check-label" for="gridRadios1">
                                Male

```

```

        </label>
      </div>
      <div class="form-check">
        <input class="form-check-
input" type="radio" name="gridRadios" id="gridRadios2" value="option2">
        <label class="form-check-label" for="gridRadios2">
          Female
        </label>
      </div>
    </div>
  </div>
</fieldset>
<div class="form-group row">
  <div class="col-sm-3"></div>
  <div class="col-sm-10">
    <div class="form-check">
      <input class="form-check-input" type="checkbox" id="gridCheck1">
      <label class="form-check-label" for="gridCheck1">
        I accept the terms of Service.
      </label>
    </div>
  </div>
</div>
<div class="form-group row">
  <div class="col-sm-10">
    <button type="submit" class="btn btn-primary">Sign in</button>
  </div>
</div>
</form>
</div>
<!-- /.row -->

</div>
<!-- /.container -->

<!-- Footer -->
<footer class="py-5 bg-dark">
  <div class="container">
    <p class="m-0 text-center text-white">Copyright &copy; Smarthphone Website 2019</p>
  </div>
  <!-- /.container -->
</footer>

<!-- Bootstrap core JavaScript -->
<script src="{ { url_for('static', filename='jquery/jquery.min.js') } }"></script>
<script src="{ { url_for('static', filename='js/bootstrap.bundle.min.js') } }"></script>

</body>

</html>

```

## login.html

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

<head>

  <meta charset="utf-8">
  <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">
  <meta name="description" content="">
  <meta name="author" content="">

  <title>Shop Homepage - Start Bootstrap Template</title>

  <!-- Bootstrap core CSS -->
  <link href="{ { url_for('static', filename='css/bootstrap.min.css') } }" rel="stylesheet"
>

  <!-- Custom styles for this template -->
  <link href="{ { url_for('static', filename='css/shop-
homepage.css') } }" rel="stylesheet">

</head>

<body>

  <!-- Navigation -->
  <nav class="navbar navbar-expand-lg navbar-dark bg-dark fixed-top">
    <div class="container">
      <a class="navbar-brand" href="#">Start Bootstrap</a>
      <button class="navbar-toggler" type="button" data-toggle="collapse" data-
target="#navbarResponsive" aria-controls="navbarResponsive" aria-expanded="false" aria-
label="Toggle navigation">
        <span class="navbar-toggler-icon"></span>
      </button>
      <div class="collapse navbar-collapse" id="navbarResponsive">
        <ul class="navbar-nav ml-auto">
          <li class="nav-item active">
            <a class="nav-link" href="{ { url_for('index') } }">Home
              <span class="sr-only">(current)</span>
            </a>
          </li>
          <li class="nav-item">
            <a class="nav-link" href="{ { url_for('about') } }">About</a>
          </li>
          <li class="nav-item">
            <a class="nav-link" href="{ { url_for('cadastro') } }">Cadastrar</a>
          </li>
          <li class="nav-item">
            <a class="nav-link" href="{ { url_for('login') } }">Logar</a>
          </li>
        </ul>
      </div>
    </div>
  </nav>
```

```

    </div>
</nav>

<!-- Page Content -->
<div class="container">

    <div class="row">

        <div class="col-lg-4">

            <h1 class="my-4">Loja de Smartphones</h1>
            <div class="list-group">
                <a href="#" class="list-group-item">Android</a>
                <a href="#" class="list-group-item">IOS</a>
                <a href="#" class="list-group-item">Outros</a>
            </div>

        </div>
        <!-- /.col-lg-3 -->
        <form action="logar" method="POST" style="padding-top: 50px;">
            <div class="form-group row">
                <label for="inputEmail3" class="col-sm-3 col-form-label">Email</label>
                <div class="col-sm-10">
                    <input type="email" class="form-
control" name="email" id="inputEmail3" placeholder="Email">
                </div>
            </div>
            <div class="form-group row">
                <label for="inputPassword3" class="col-sm-3 col-form-label">Password</label>
                <div class="col-sm-10">
                    <input type="password" class="form-
control" name="password" id="inputPassword3" placeholder="Password">
                </div>
            </div>
            <div class="form-group row">
                <div class="col-sm-10">
                    <button type="submit" class="btn btn-primary">Sign in</button>
                </div>
            </div>
        </form>
    </div>
    <!-- /.row -->

</div>
<!-- /.container -->

<!-- Footer -->
<footer class="py-5 bg-dark">
    <div class="container">
        <p class="m-0 text-center text-white">Copyright &copy; Smarthphone Website 2019</p>
    </div>
<!-- /.container -->

```

```
</footer>

<!-- Bootstrap core JavaScript -->
<script src="{ { url_for('static', filename='jquery/jquery.min.js') } }"></script>
<script src="{ { url_for('static', filename='js/bootstrap.bundle.min.js') } }"></script>

</body>

</html>
```

#### **4. Link Repositório GitHub**

[https://github.com/Redchili385/ASA\\_TRAB1](https://github.com/Redchili385/ASA_TRAB1)