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COLLEGE OF ENGINEERING AND TECHNOLOGY,

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**Included under section 2 (f) & 12 (B) of the UGC Act, 1956**

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ISO

**DEPARTMENT OF INFORMATION TECHNOLOGY**

# Laboratory Manual

**Class: B.E. IT**

**Subject: Advanced Technology Lab-II**

**Academic Year: 2021-22** **Semester: VIII**

**DEPARTMENT OF INFORMATION TECHNOLOGY**

## Vision of the Department

To develop technocrats as per industry technical needs and social values.

## Mission of the Department

To provide conducive environment to impart technical knowledge through teaching, self-learning and skill development programme to stand out in competitive world.

## DEPARTMENT OF INFORMATION TECHNOLOGY

### Programme Educational Objectives

### PEO 1. Core Knowledge

To provide students with Core Knowledge in mathematical, scientific and basic engineering fundamentals necessary to formulate, analyze and solve engineering problems and also to pursue advanced study or research.

### PEO 2. Employment

To train students with good breadth of knowledge in core areas of Information Technology and related engineering so as to comprehend engineering trade-offs, analyze, design, and synthesize data and technical concepts to create novel products and solutions for the real-life problems.

### PEO 3. Professional Competency

To inculcate in students to maintain high professionalism and ethical standards, effective oral and written communication skills, to work as part of teams on multidisciplinary projects and diverse professional environments, and relate engineering issues to the society, global economy and to emerging technologies.

## DEPARTMENT OF INFORMATION TECHNOLOGY

### Programme Outcomes

a. An ability to apply knowledge of mathematics, science, and engineering.

b. An ability to design and conduct experiments, as well as to analyze and interpret data.

c. An ability to design a system, component or process to meet desired needs within a realistic constraint such as economic, environmental, social, political, ethical, health and safety, manufacturability, sustainability.

d. An ability to function on multidisciplinary team.

e. An ability to identify, formulates, and solves engineering problems.

f. An understanding of professional and ethical responsibility.

g. An ability to communicate effectively.

h. The broad education necessary to understand the impact of engineering solution in a global, economic, environmental, and social context.

i. Recognition of the need for and an ability to engage in a lifelong learning.

j. Knowledge of contemporary issues.

k. An ability to use a technique, skill, and modern engineering tools necessary for engineering practice.

l. Exposure to programming languages.

## DEPARTMENT OF INFORMATION TECHNOLOGY

## Subject Name: Advanced Technology Lab- II

## Program Specific Outcomes

**PSO1**: Software System: To apply software engineering principles to study, analyze, design, implement, test and maintain software system.

**PSO2:** Open-Source Software: Demonstrate familiarity and practical competence with a broad range of programming languages and open-source platforms.

**PSO3:** Computer Proficiency: Exhibit proficiency through latest technologies in demonstrating theability for work efficacy to the industry & society

### Course Outcomes

**CO1:** Break down real world problems / application.

**CO2:** Demonstrate Full Stack development.

**CO3:** Design Full Stack based applications.

**CO4:** Decide tools for Full Stack development.

**CO5:** Develop Full Stack based applications

- **CO-PO-PSO Mapping for Advanced Technology Lab -II**

| | **PO 1** | **PO 2** | **PO 3** | **PO 4** | **PO 5** | **PO 6** | **PO 7** | **PO 8** | **PO 9** | **PO 10** | **PO 11** | **PO 12** | **PSO1** | **PSO2** | **PSO3** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CO1** | 2 | 1 | 2 | | 2 | 1 | 2 | 2 | | 1 | 1 | 3 | 3 | 2 | 3 |
| **CO2** | 2 | | 3 | | 2 | 1 | 2 | 2 | | | 1 | 3 | 3 | 2 | 3 |
| **CO3** | 2 | | 3 | | 2 | 1 | 2 | 2 | | | 1 | 3 | 3 | 2 | 3 |
| **CO4** | 2 | | 3 | | 2 | 1 | 2 | 2 | | | 1 | 3 | 3 | 2 | 3 |
| **CO5** | 2 | 1 | 3 | | 2 | 1 | 2 | 2 | | | 1 | 3 | 3 | 2 | 3 |
| | **2** | **1** | **2.8** | | **2** | **1** | **2** | **2** | | **1** | **1** | **3** | **3** | **2** | **3** |

**SSBT's College of Engineering & Technology, Bambhori, Jalgaon**

**Department of Information Technology**

**Academic Year 2021-2022 (Term-II)**

**Subject: Advanced Technology Lab-II**

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**SSBT's College of Engineering & Technology,Bambhori, Jalgaon**

**Department of Information Technology**

Name: ______________________________________________

Class: __________ Division: _________ Batch: ________ Roll No: _____

Subject: Advance Technology Lab-II

Date of Performance:

Date of Completion: Subject Teacher Sign

## Experiment No. 1

## Aim: Data Visualization using Python.

**1. Objective:** To demonstrate various python libraries such as Matplotlib , Seaborn, Pandas

**2. Background:**

Data visualization is the presentation of data in a pictorial or graphical format. It enables decision makers to see analytics presented visually, so they can grasp difficult concepts or identify new patterns. With interactive visualization, you can take the concept a step further by using technology to drill down into charts and graphs for more detail, interactively changing what data you see and how it's processed.

History of Data Visualization

The concept of using pictures to understand data has been around for centuries, from maps and graphs in the 17th century to the invention of the pie chart in the early 1800s. Several decades later, one of the most cited examples of statistical graphics occurred when Charles Minard mapped Napoleon's invasion of Russia. The map depicted the size of the army as well as the path of Napoleon's retreat from Moscow – and tied that information to temperature and time scales for a more in-depth understanding of the event. It's technology, however, that truly lit the fire under data visualization. Computers made it possible to process large amounts of data at lightning-fast speeds. Today, data visualization has become a rapidly evolving blend of science and art that is certain to change the corporate landscape over the next few years.

**Why is data visualization important?**

Because of the way the human brain processes information, using charts or graphs to visualize large amounts of complex data is easier than poring over spreadsheets or reports. Data visualization is a quick, easy way to convey concepts in a universal manner – and you can experiment with different scenarios by making slight adjustments.

Data visualization can also:

- Identify areas that need attention or improvement.
- Clarify which factors influence customer behavior.
- Help you understand which products to place where.
- Predict sales volumes.

Python offers multiple great graphing libraries that come packed with lots of different features. No matter if you want to create interactive, live or highly customized plots python has an excellent library for you.

To get a little overview here are a few popular plotting libraries: Matplotlib, Pandas and Seaborn

**Outcomes:**

**Able to understand:**

- Matplotlib for low level, provides lots of freedom to visualization
- Pandas Visualization: easy to use interface, built on Matplotlib
- Seaborn: high-level interface, great default styles

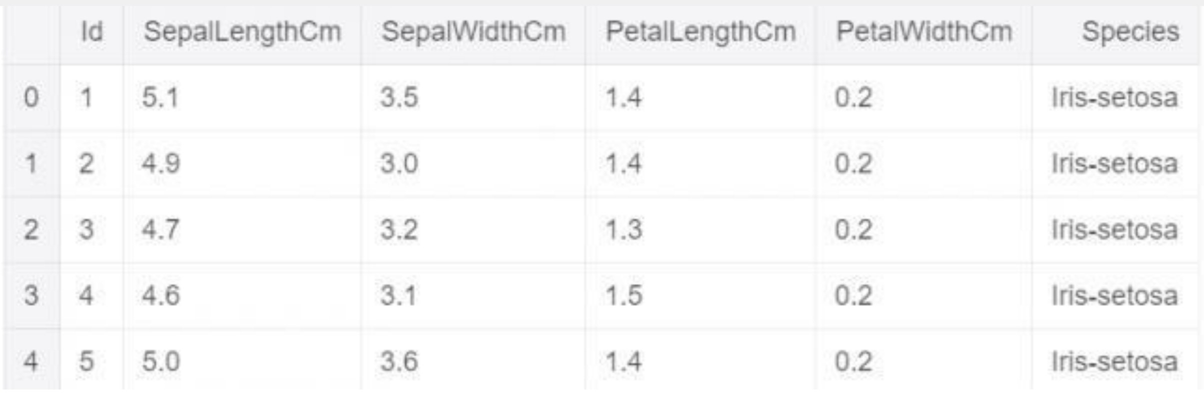
**Questions:**

1. Explain python library Seaborn.
2. Describe Pandas with example.
3. State the use of Matplotlib.

**Example 1: –**

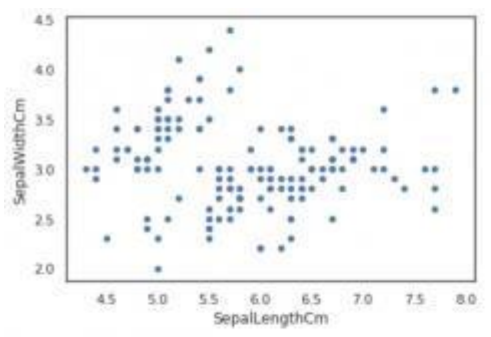
**Data visualization dataset:- Iris Dataset**

```
import pandas as pd

Import numpy as np

Import matplotlib.pyplot as plt

Import seaborn as sns

sns.set(style=”white”, color_codes=True)

%matplotlib inline

df = pd.read_csv(./iris.csv)

df.head()
```

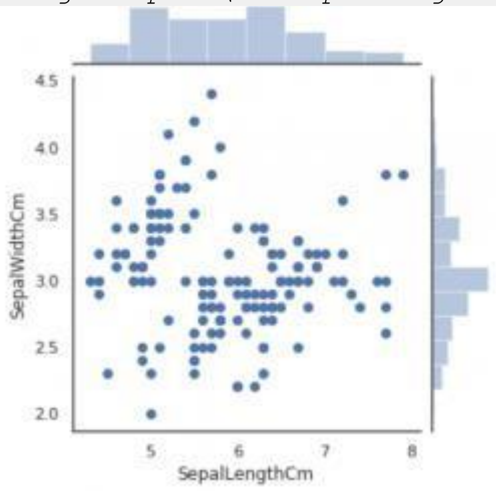


|   | Id | SepalLengthCm | SepalWidthCm | PetalLengthCm | PetalWidthCm | Species |
|---|---|---|---|---|---|---|
| 0 | 1 | 5.1 | 3.5 | 1.4 | 0.2 | Iris-setosa |
| 1 | 2 | 4.9 | 3.0 | 1.4 | 0.2 | Iris-setosa |
| 2 | 3 | 4.7 | 3.2 | 1.3 | 0.2 | Iris-setosa |
| 3 | 4 | 4.6 | 3.1 | 1.5 | 0.2 | Iris-setosa |
| 4 | 5 | 5.0 | 3.6 | 1.4 | 0.2 | Iris-setosa |

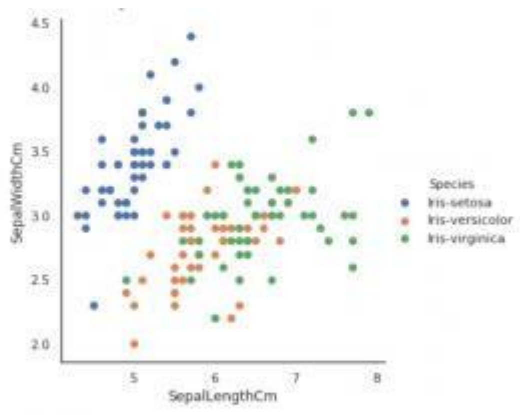
```
df.plot(kind="scatter", x="SepalLengthCm", y="SepalWidthCm")
```



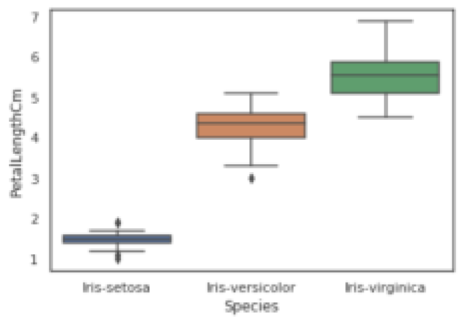
```
sns.jointplot(x="SepalLengthCm", y="SepalWidthCm", data=df, size=5)
```



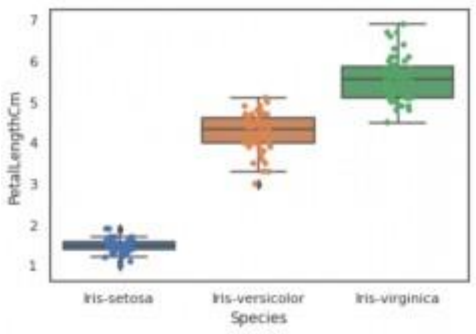
```
sns.FacetGrid(df, hue="Species", size=5) \

   .map(plt.scatter, "SepalLengthCm", "SepalWidthCm") \

   .add_legend()
```



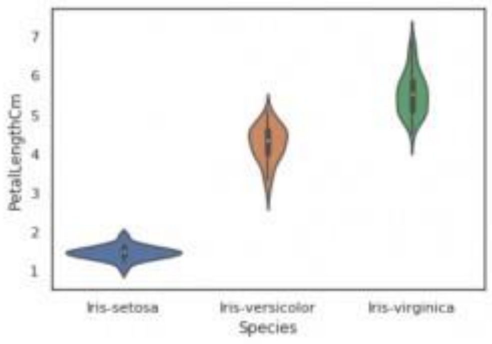
```
sns.boxplot(x="Species", y="PetalLengthCm", data=df)
```



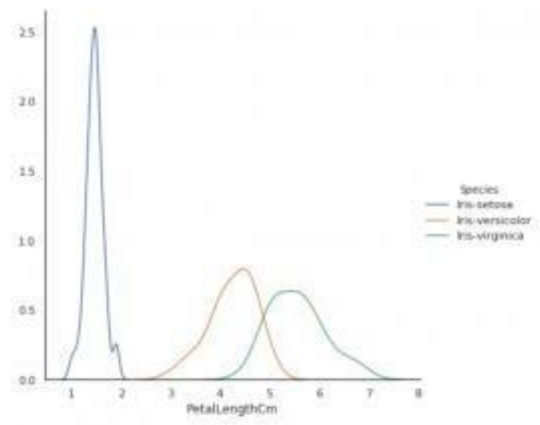
```
ax = sns.boxplot(x="Species", y="PetalLengthCm", data=df)

ax = sns.stripplot(x="Species", y="PetalLengthCm", data=df, jitter=T
rue,

edgecolor="gray")
```



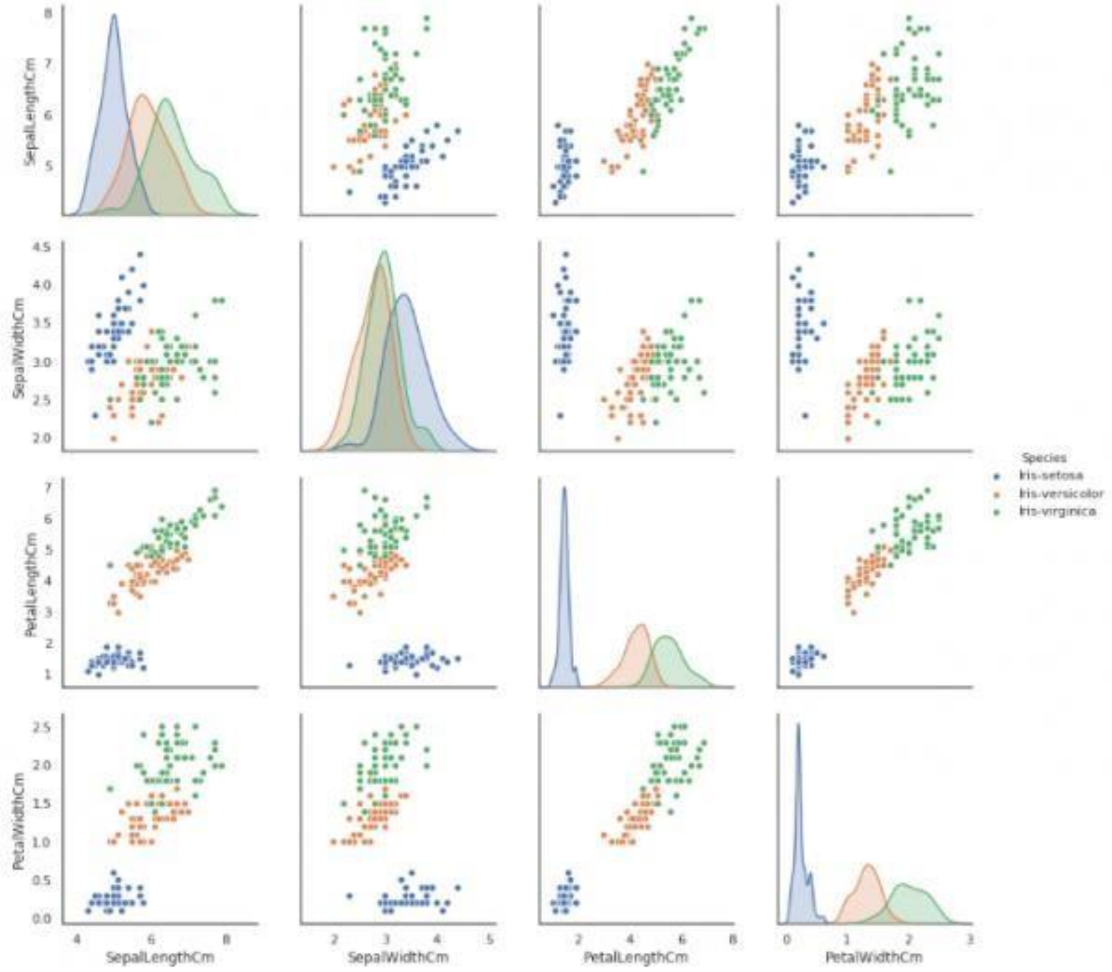
```
sns.violinplot(x="Species", y="PetalLengthCm", data=df, size=6)
```



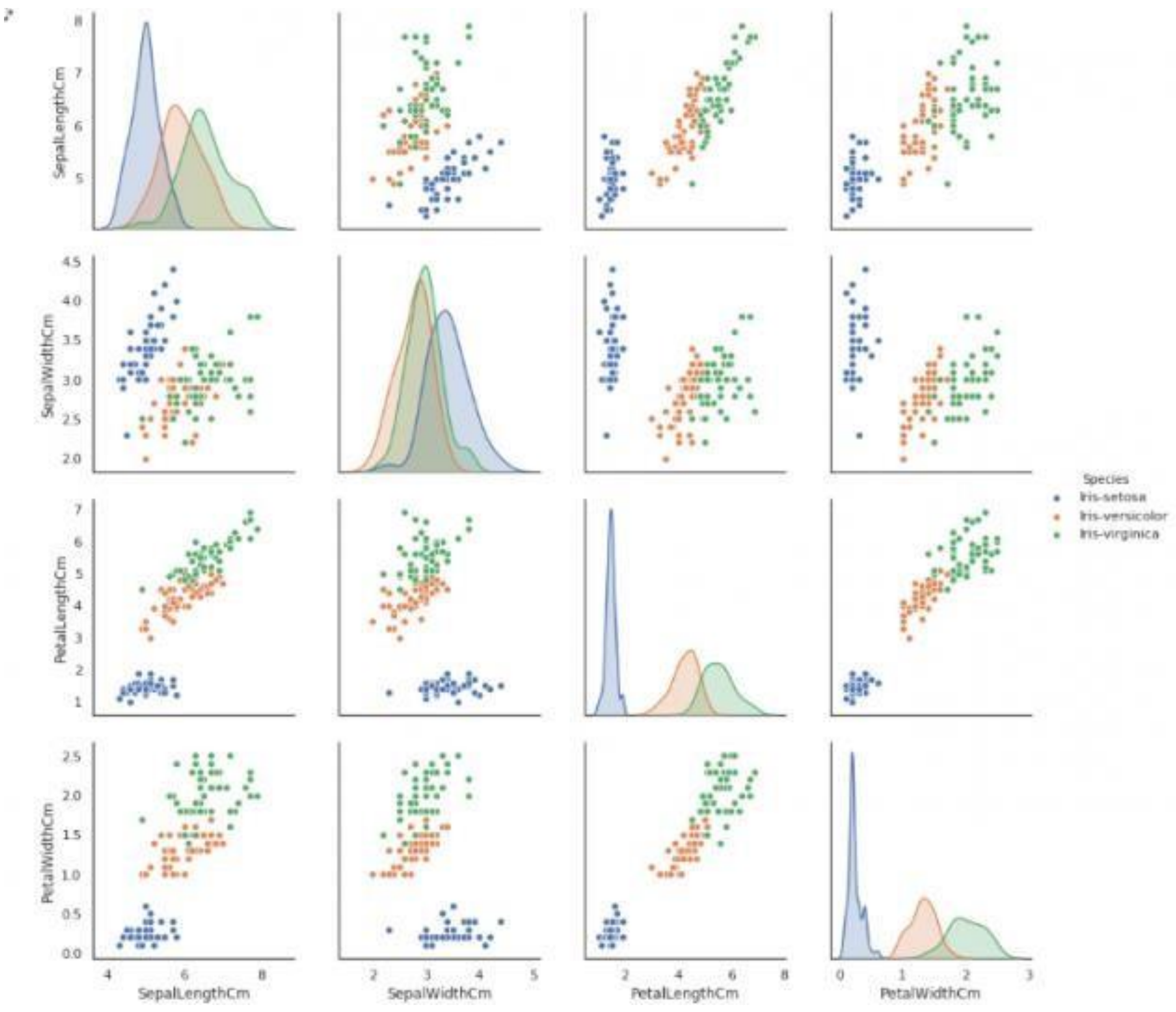
```
sns.FacetGrid(df, hue="Species", size=6) \

    .map(sns.kdeplot, "PetalLengthCm") \

    .add legend()
```



```
sns.pairplot(df.drop("Id", axis=1), hue="Species", size=3)
```

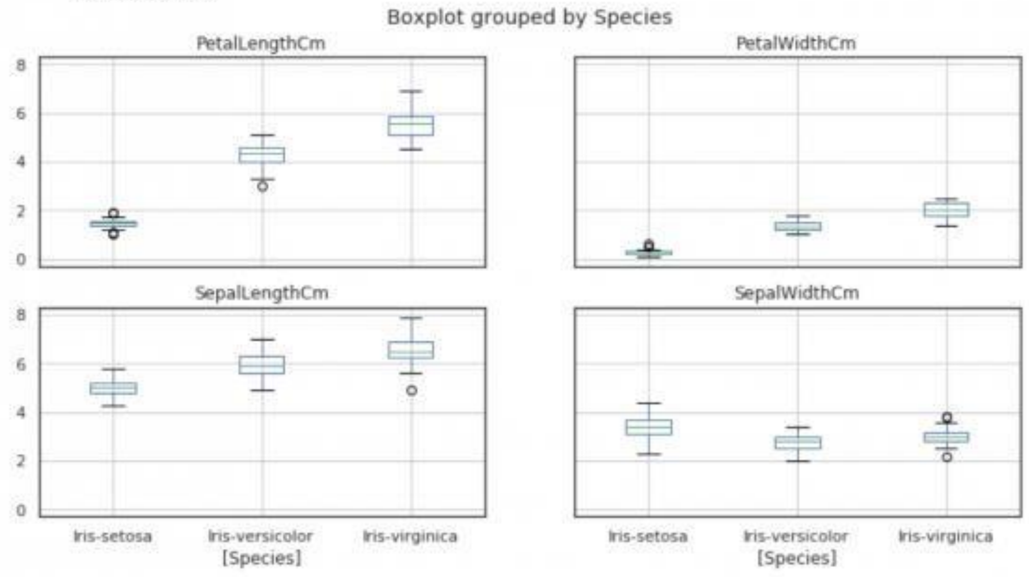


```
sns.pairplot(df.drop("Id", axis=1), hue="Species", size=3,
diag_kind="kde")
```



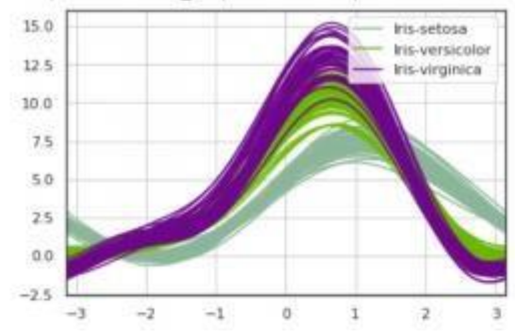
```
df.drop("Id", axis=1).boxplot(by="Species", figsize=(12, 6))
```

```
array([[<matplotlib.axes._subplots.AxesSubplot object at 0x7f9cea9c2b00>,
        <matplotlib.axes._subplots.AxesSubplot object at 0x7f9cea7c91d0>],
       [<matplotlib.axes._subplots.AxesSubplot object at 0x7f9cea7707b8>,
        <matplotlib.axes._subplots.AxesSubplot object at 0x7f9cea7a0e48>]],
      dtype=object)
```



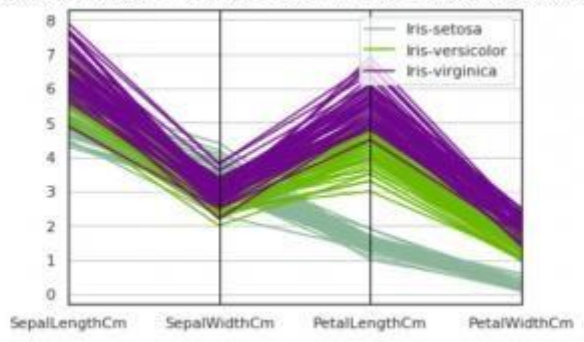
```
from pandas.plotting import andrews_curves

andrews_curves(df.drop("Id", axis=1), "Species")
```

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f9cea5c6f98>
```



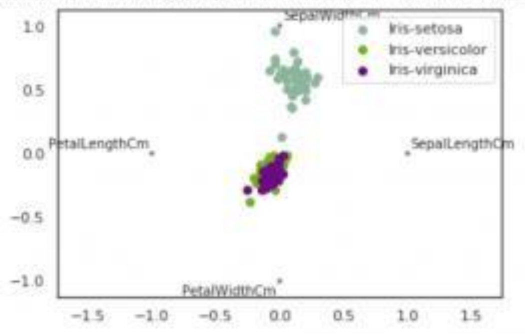
```
from pandas.plotting import parallel_coordinates

parallel_coordinates(df.drop("Id", axis=1), "Species")
```

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f9cea2be898>
```



```
from pandas.plotting import radviz

radviz(df.drop("Id", axis=1), "Species")
```

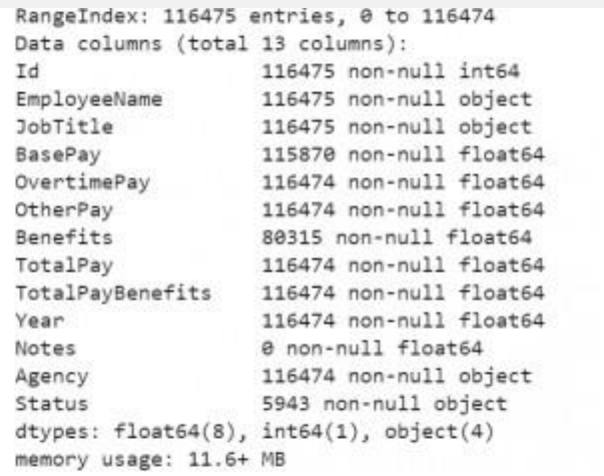
```
<matplotlib.axes._subplots.AxesSubplot at 0x7f9cea091898>
```



**Example 2:-**

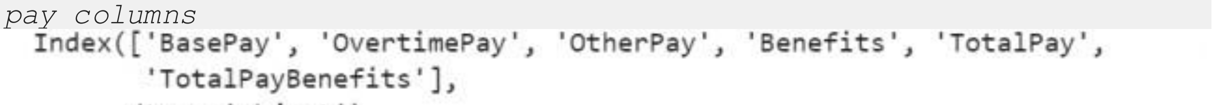
**Data Visualization dataset: San Francisco Salaries**

```
salaries = pd.read_csv('./Salaries.csv')

salaries.info()
```



```
RangeIndex: 116475 entries, 0 to 116474
Data columns (total 13 columns):
Id                  116475 non-null int64
EmployeeName        116475 non-null object
JobTitle            116475 non-null object
BasePay             115870 non-null float64
OvertimePay         116474 non-null float64
OtherPay            116474 non-null float64
Benefits            80315 non-null float64
TotalPay            116474 non-null float64
TotalPayBenefits    116474 non-null float64
Year                116474 non-null float64
Notes               0 non-null float64
Agency              116474 non-null object
Status              5943 non-null object
dtypes: float64(8), int64(1), object(4)
memory usage: 11.6+ MB
```

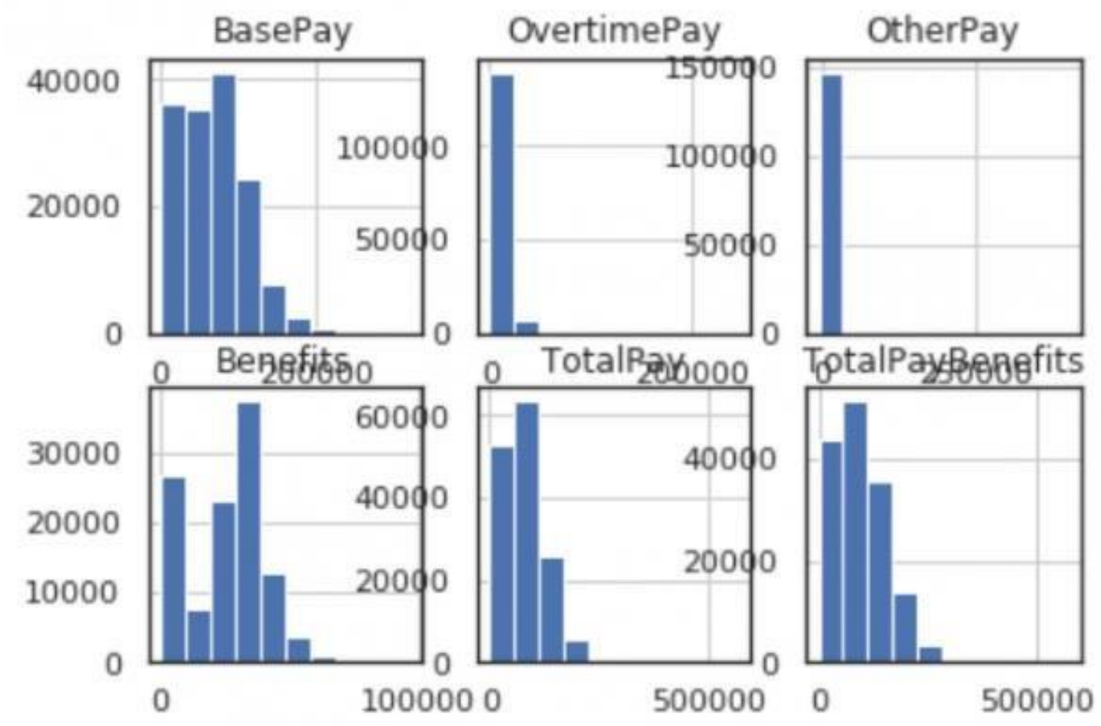
```
for col in ['BasePay', 'OvertimePay', 'OtherPay', 'Benefits']:

    salaries[col] = pd.to_numeric(salaries[col], errors='coerce')

pay_columns = salaries.columns[3:salaries.columns.get_loc('Year')]

pay columns
```



```
Index(['BasePay', 'OvertimePay', 'OtherPay', 'Benefits', 'TotalPay',
       'TotalPayBenefits'],
```

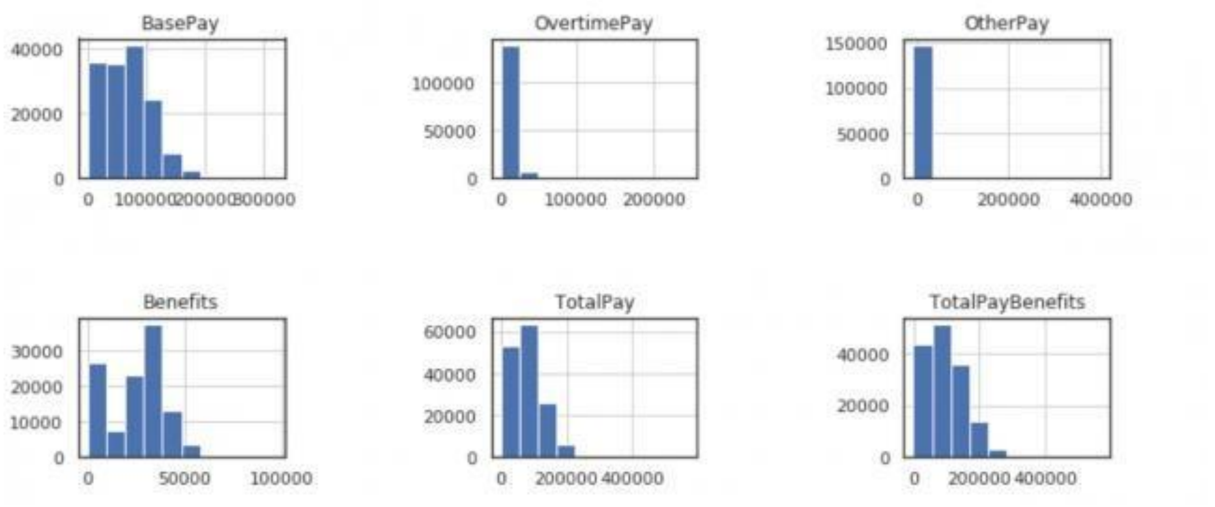
```
pays_arrangement = list(zip(*(iter(pay_columns),) * 3))

fig, axes = plt.subplots(2,3)
```

```
for i in range(len(pays_arrangement)):

  for j in range(len(pays_arrangement[i])):



# pass in axes to pandas hist

salaries[pays_arrangement[i][j]].hist(ax=axes[i,j])



# axis objects have a lot of methods for customizing the look of a
plot

axes[i,j].set_title(pays_arrangement[i][j])

plt.show()
```



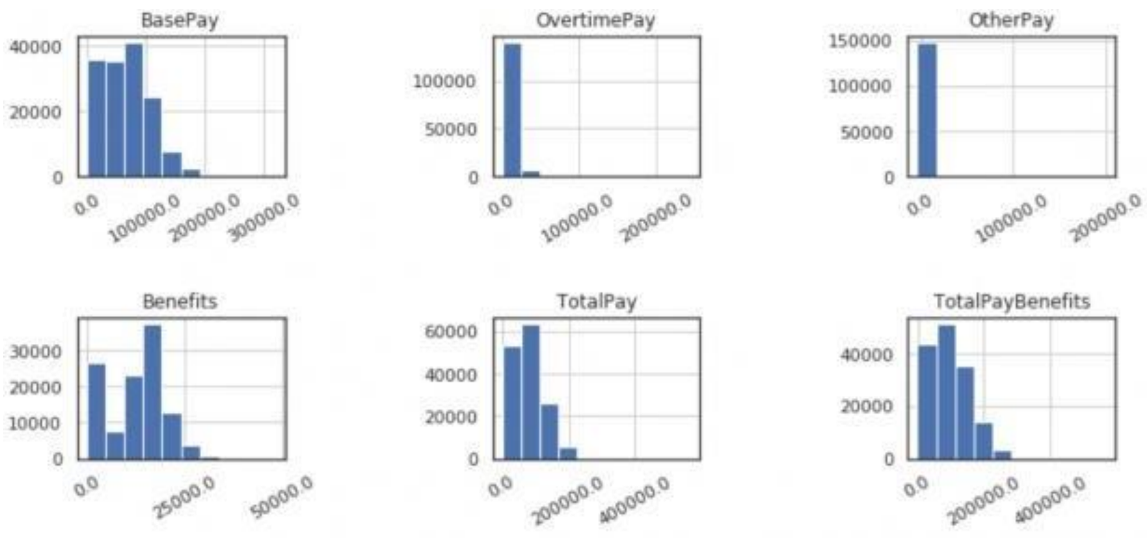
```
fig, axes = plt.subplots(2,3)



# set the figure height
```

```
fig.set_figheight(5)

fig.set_figwidth(12)



for i in range(len(pays_arrangement)):

    for j in range(len(pays_arrangement[i])):

        # pass in axes to pandas hist

        salaries[pays_arrangement[i][j]].hist(ax=axes[i,j])

        axes[i,j].set_title(pays_arrangement[i][j])



# add a row of emptiness between the two rows

plt.subplots_adjust(hspace=1)

# add a row of emptiness between the cols

plt.subplots_adjust(wspace=1)

plt.show()
```



```
# and here is a cleaner version using tick rotation and plot spacing

fig, axes = plt.subplots(2,3)
```

```
# set the figure height

fig.set_figheight(5)

fig.set_figwidth(12)



for i in range(len(pays_arrangement)):

    for j in range(len(pays_arrangement[i])):

        salaries[pays_arrangement[i][j]].hist(ax=axes[i,j])

        axes[i,j].set_title(pays_arrangement[i][j])



        # set xticks with these labels,

        axes[i,j].set_xticklabels(labels=axes[i,j].get_xticks(),

                                  # with this rotation

                                  rotation=30)



plt.subplots_adjust(hspace=1)

plt.subplots_adjust(wspace=1)

plt.show()
```


BasePay
OvertimePay
OtherPay
Benefits
TotalPay
TotalPayBenefits
0.0
100000.0
200000.0
300000.0
25000.0
50000.0
400000.0
0
20000
40000
50000
100000
150000
10000
30000
60000

**SSBT's College of Engineering & Technology,Bambhori, Jalgaon**

**Department of Information Technology**

Name: ____________________________________________________________

Class: __________ Division: _________ Batch: ________ Roll No: _____

Subject: Advance Technology Lab-II

Date of Performance:

Date of Completion: Subject Teacher Sign

## Experiment No. 2

## Aim: Implementation of Django stack.

**1. Objective:** To demonstrate Django stack.

**2. Implementation of Django Stack :**

Django is available open-source under the BSD license. We recommend using the latest version of Python 3. The last version to support Python 2.7 is Django 1.11 LTS. See the FAQ for the Python versions supported by each version of Django. Here's how to get it:

Option 1: Get the latest official version

The latest official version is 3.2.5 (LTS). Read the 3.2.5 release notes, then install it with pip:

```
pip install Django==3.2.5
```

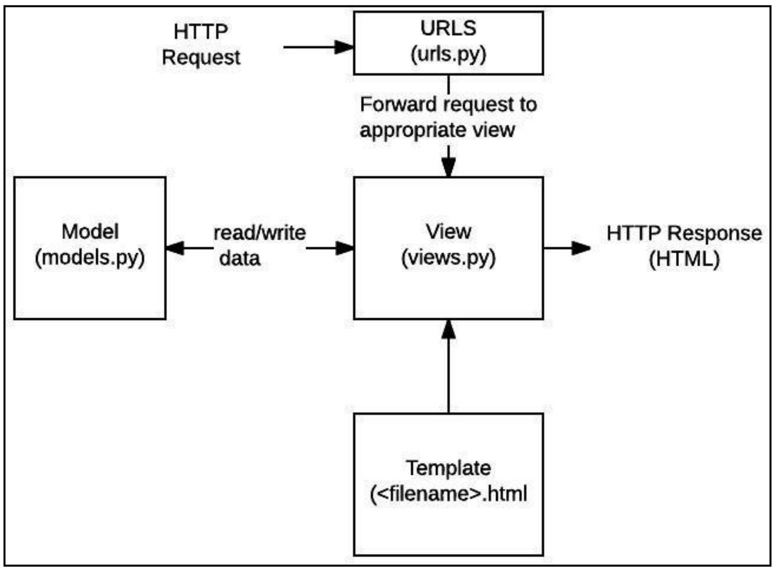
Option 2: Get the latest development version

The latest and greatest Django version is the one that's in our Git repository (our revision -control system). This is only for experienced users who want to try incoming changes and help identify bugs before an official release. Get it using this shell command, which requires Git:

```
git clone https://github.com/django/django.git
```

In a traditional data-driven website, a web application waits for HTTP requests from the web browser (or other client). When a request is received the application works out what is needed based on the URL and possibly information in POST data or GET data. Depending on what is required it may then read or write information from a database or perform other tasks required to satisfy the request. The application will then return a response to the web browser, often dynamically creating an HTML page for the browser to display by inserting the retrieved data into placeholders in an HTML template.

Django web applications typically group the code that handles each of these steps into separate files:



- **URLs:** While it is possible to process requests from every single URL via a single function, it is much more maintainable to write a separate view function to handle each resource. A URL mapper is used to redirect HTTP requests to the appropriate view based on the request URL. The URL mapper can also match particular patterns of strings or digits that appear in a URL and pass these to a view function as data.
- **View:** A view is a request handler function, which receives HTTP requests and returns HTTP responses. Views access the data needed to satisfy requests via *models*, and delegate the formatting of the response to *templates*.
- **Models:** Models are Python objects that define the structure of an application's data, and provide mechanisms to manage (add, modify, delete) and query records in the database.
- **Templates:** A template is a text file defining the structure or layout of a file (such as an HTML page), with placeholders used to represent actual content. A *view* can dynamically create an HTML page using an HTML template, populating it with data from a *model*

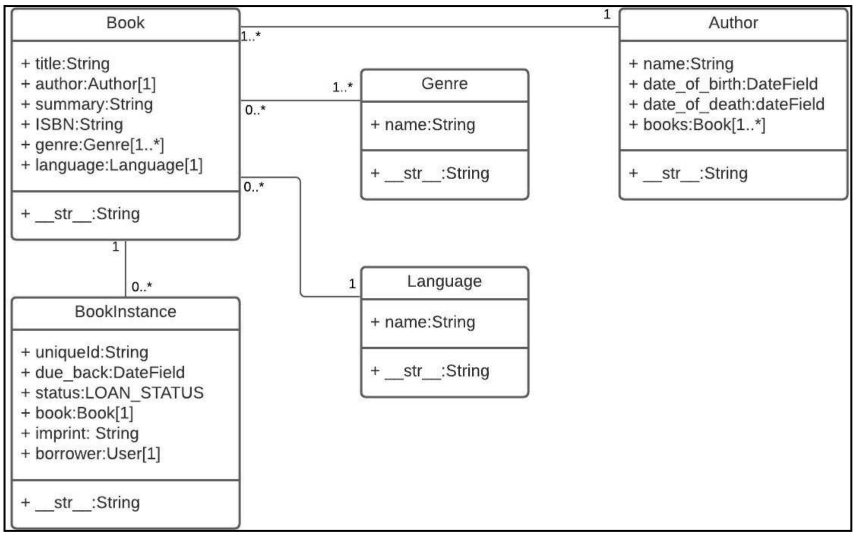
A template can be used to define the structure of any type of file; it doesn't have to be HTML!

## 3. Application:

This web application creates an online catalog for a small local library, where users can browse available books and manage their accounts.

The main features that have currently been implemented are:

- There are models for books, book copies, genre, language and authors.
- Users can view list and detail information for books and authors.
- Admin users can create and manage models. The admin has been optimised (the basicregistration is present in admin.py, but commented out).
- Librarians can renew reserved books



**Code: https://github.com/mdn/django-locallibrary-tutorial**

To get this project up and running locally on computer:

1. Set up the Python development environment. We recommend using a Python virtualenvironment.
2. Assuming you have Python setup, run the following commands (if you're on Windowsyou may use py or py -3 instead of python to start Python):
3. pip3 install -r requirements.txt
4. python3 manage.py make migrations
5. python3 manage.py migrate

6. python3 manage.py collectstatic
7. python3 manage.py test # Run the standard tests. These should all pass.
8. python3 manage.py createsuperuser # Create a superuser
9. python3 manage.py runserver
10. Open a browser to http://127.0.0.1:8000/admin/ to open the admin site
11. Create a few test objects of each type.
12. Open tab to http://127.0.0.1:8000 to see the main site, with your new objects.

**Outcomes:**

**Able to deploy project in django stack.**

**Questions:**

1. Discuss Models in detail.
2. What is the use of view?
3. State the difference between flask and Django

**Example:**

**Index.html**

```
{% extends "base_generic.html" %}

{% block content %}
<h1>Local Library Home</h1>

<p>Welcome to <em>LocalLibrary</em>, a very basic Django website developed as a <a
href="https://developer.mozilla.org/en-US/docs/Learn/Server-
side/Django/Tutorial_local_library_website">tutorial example</a> on the Mozilla Developer
Network.</p>
<p>The tutorial demonstrates how to create a Django skeleton website and application, define
URL mappings, views (including Generic List and Detail Views), models and templates.</p>


<h2>UML Models</h2>
<p>An UML diagram of the site's Django model structure is shown below. </p>

<div>
{% load static %}
<img src="{% static "images/local_library_model_uml.png" %}" alt="My image"
style="width:555px;height:540px;"/>
</div>


<h2>Dynamic content</h2>

<p>The library has the following record counts:</p>
<ul>
<li><strong>Books:</strong> {{ num_books }}</li>
<li><strong>Copies:</strong> {{ num_instances }}</li>
<li><strong>Copies available:</strong> {{ num_instances_available }}</li>
<li><strong>Authors:</strong> {{ num_authors }}</li>
</ul>


<p>You have visited this page {{ num_visits }} time{{ num_visits|pluralize
}}.</p>

{% endblock %}
```

**Base_generic.html**

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

   {% block title %}<title>Local Library</title>{% endblock %}
   <meta charset="utf-8">
   <meta name="viewport" content="width=device-width, initial-scale=1">
   <link rel="stylesheet"
href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css"


TX8t27EcRE3e/ihU7zmQxVncDAy5uIKz4rEkgIXeMed4M0jlfIDPvg6uqKI2x
```

```
Xr2"crossorigin="anonymous">


   <!-- Add additional CSS in static file -->
   {% load static %}
   <link rel="stylesheet" href="{% static 'css/styles.css' %}">
</head>
<body>

<div class="container-fluid">

<div class="row">
   <div class="col-sm-2">
   {% block sidebar %}
   <ul class="sidebar-nav">
      <li><a href="{% url 'index' %}">Home</a></li>
      <li><a href="{% url 'books' %}">All books</a></li>
      <li><a href="{% url 'authors' %}">All authors</a></li>
   </ul>

   <ul class="sidebar-nav">
    {% if user.is_authenticated %}
       <li>User: {{ user.get_username }}</li>
       <li><a href="{% url 'my-borrowed' %}">My Borrowed</a></li>
       <li><a href="{% url 'logout'%}?next={{request.path}}">Logout</a></li>
    {% else %}
       <li><a href="{% url 'login'%}?next={{request.path}}">Login</a></li>
    {% endif %}
   </ul>

    {% if user.is_staff %}
    <hr />
    <ul class="sidebar-nav">
    <li>Staff</li>
    {% if perms.catalog.can_mark_returned %}
    <li><a href="{% url 'all-borrowed' %}">All borrowed</a></li>
    {% endif %}
    </ul>
      {% endif %}



{% endblock %}
   </div>
   <div class="col-sm-10 ">
   {% block content %}{% endblock %}

   {% block pagination %}
      {% if is_paginated %}
            <div class="pagination">
                  <span class="page-links">
                        {% if page_obj.has_previous %}
                              <a    href="{{    request.path    }}?page={{
page_obj.previous_page_number }}">previous</a>
                        {% endif %}
```

```
                                <span class="page-current">
                                        Page   {{   page_obj.number  }}   of   {{
page_obj.paginator.num_pages }}.
                                </span>
                                {% if page_obj.has_next %}
                                        <a    href="{{    request.path    }}?page={{
page_obj.next_page_number }}">next</a>

                                {% endif %}
                        </span>
                </div>
        {% endif %}
    {% endblock %}
    </div>
</div>

</div>
</body>
</html>
```

**logged_out.html**

```
{% extends "base_generic.html" %}

{% block content %}
<p>Logged out!</p>

<a href="{% url 'login'%}">Click here to login again.</a>
```

**Login.html**

```
{% extends "base_generic.html" %}

{% block content %}

{% if form.errors %}
<p>Your username and password didn't match. Please try again.</p>
{% endif %}

{% if next %}
        {% if user.is_authenticated %}
        <p>Your account doesn't have access to this page. To proceed,please login with an
        account that has access.</p>
        {% else %}
        <p>Please login to see this page.</p>
        {% endif %}
{% endif %}
```

```
<form method="post" action="{% url 'login' %}">
{% csrf_token %}
<table>
<tr>
        <td>{{ form.username.label_tag }}</td>
        <td>{{ form.username }}</td>
</tr>
<tr>
        <td>{{ form.password.label_tag }}</td>
        <td>{{ form.password }}</td>
</tr>
</table>

<input type="submit" value="login" />
<input type="hidden" name="next" value="{{ next }}" />
</form>
```

---

```
{# Assumes you setup the password_reset view in your URLconf #}
<p><a href="{% url 'password_reset' %}">Lost password?</a></p>

{% endblock %}
```

**password_reset_complete.html**

```
{% extends "base_generic.html" %}

{% block content %}

<h1>The password has been changed!</h1>
<p><a href="{% url 'login' %}">log in again?</a></p>

{% endblock %}
```

**Password_reset.html**

```
% extends "base_generic.html" %}

{% block content %}

        {% if validlink %}
                <p>Please enter (and confirm) your new password.</p>
                <form action="" method="post">
                        <div style="display:none">
                                <input type="hidden" value="{{ csrf_token }}"
name="csrfmiddlewaretoken">
                        </div>
```

**Password_reset_done.html**

**Password_reset_done.html**

```
{
                <table>
                        <tr>
                                <td>{{ form.new_password1.errors }}
                                        <label for="id_new_password1">New
password:</label></td>
                                <td>{{ form.new_password1 }}</td>
                        </tr>
                        <tr>
                                <td>{{ form.new_password2.errors }}
                                        <label for="id_new_password2">Confirm
password:</label></td>
                                <td>{{ form.new_password2 }}</td>
                        </tr>
                        <tr>
                                <td></td>
                                <td><input type="submit" value="Change my password"
/></td>
                        </tr>
                </table>
        </form>
    {% else %}
        <h1>Password reset failed</h1>
        <p>The password reset link was invalid, possibly because it hasalready been
used. Please request a new password reset.</p>
    {% endif %}

{% endblock %}
```

**Password_reset_done.html**

```
{% extends "base_generic.html" %}

{% block content %}

<p>We've emailed you instructions for setting your password. If theyhaven't arrived
in a few minutes, check your spam folder.</p>

{% endblock %}
```

**Password_reset_form.html**

```
{% extends "base_generic.html" %}

{% block content %}

<form action="" method="post">{% csrf_token %}
    {% if form.email.errors %}{{ form.email.errors }}{% endif %}
        <p>{{ form.email }}</p>
    <input type="submit" class='btn btn-default btn-lg' value="Resetpassword" />
</form>

{% endblock %}
```

**Password_reset_email.html**

```
Someone asked for password reset for email {{ email }}. Follow the linkbelow:
{{ protocol}}://{{ domain }}{% url 'password_reset_confirm' uidb64=uidtoken=token %}
```

**Style.css**

```
.sidebar-nav { margin-
        top: 20px;padding:
        0;
        list-style: none;
}
```

**Manage.py**

```
#!/usr/bin/env python
"""Django's command-line utility for administrative tasks."""
import os
import sys



def main():
        """Run administrative tasks."""
        os.environ.setdefault('DJANGO_SETTINGS_MODULE',
'locallibrary.settings')
        try:
                from django.core.management import execute_from_command_lineexcept
        ImportError as exc:
                raise ImportError(



                ) from exc
        execute_from_command_line(sys.argv)


if name == ' main__': main()
```

**Admin.py**

```
from django.contrib import admin

from.models import carinfo
from .models import UserData, stationMapping

@admin.register(UserData)
class UserDetails(admin.ModelAdmin):
        list_display = ['username','email','password']
```

```
@admin.register(carinfo)
class Carlist(admin.ModelAdmin):
        list_display = ['carnumber',
'carstartlocation','carsecondlocation','carthridlocation','carfourthlocatio
n','carendlocation','availableSeatsStop4', 'carstatus']

@admin.register(stationMapping)
class stationMappingDetails(admin.ModelAdmin):
        list_display =
['carnumber','runningdays','startLocation','nextLocation','availSeat','totalSeat','active']
```

**app.py**

```
from django.apps import AppConfig

class CatalogConfig(AppConfig):
        name = 'catalog'
```

**forms.py**

```
from django.core.exceptions import ValidationError from
django.utils.translation import gettext_lazy as _import datetime   #
for checking renewal date range.

from django import forms

class RenewBookForm(forms.Form):
        """Form for a librarian to renew books."""
        renewal_date = forms.DateField(
                help_text="Enter a date between now and 4 weeks (default 3).")

        def clean_renewal_date(self):
                data = self.cleaned_data['renewal_date']

                # Check date is not in past.
                if data < datetime.date.today():
                        raise ValidationError(_('Invalid date - renewal in past'))


# Check date is in range librarian allowed to change (+4 weeks)if data >
datetime.date.today() + datetime.timedelta(weeks=4):
                        raise ValidationError(
                                _('Invalid date - renewal more than 4 weeks ahead'))

                # Remember to always return the cleaned data.return
                data
```

**models.py**

```
from  django.db  import  models #

Create your models here.

from django.urls import reverse # To generate URLS by reversing URLpatterns


class Genre(models.Model):
        """Model representing a book genre (e.g. Science Fiction, NonFiction)."""
        name    =    models.CharField(
                max_length=200,
                help_text="Enter a book genre (e.g. Science Fiction, French Poetry
etc.)"
                )


        def __str__(self):
                """String for representing the Model object (in Admin site etc.)"""
                return self.name

class Language(models.Model):
        """Model representing a Language (e.g. English, French, Japanese,etc.)"""
        name = models.CharField(max_length=200,
                                        help_text="Enter  the  book's  natural  language  (e.g.
English, French, Japanese etc.)")

        def __str__(self):
                """String for representing the Model object (in Admin site etc.)"""
                return self.name


class Book(models.Model):
        """Model representing a book (but not a specific copy of a book)."""
        title = models.CharField(max_length=200)
        author     =     models.ForeignKey('Author',     on_delete=models.SET_NULL,
null=True)
        # Foreign Key used because book can only have one author, but authors can have
multiple books
        # Author as a string rather than object because it hasn't been declaredyet in file.
        summary = models.TextField(max_length=1000, help_text="Enter a brief description
of the book")
        isbn = models.CharField('ISBN', max_length=13,
                                        unique=True,        help_text='13
                                        Character <a
href="https://www.isbn-international.org/content/what-isbn'
                                                        '">ISBN number</a>')


        genre = models.ManyToManyField(Genre, help_text="Select a genre forthis book")
        # ManyToManyField used because a genre can contain many books and aBook can
cover many genres.
        # Genre class has already been defined so we can specify the objectabove.
        language     =     models.ForeignKey('Language',     on_delete=models.SET_NULL,
null=True)


        class Meta:
```

```
        ordering = ['title', 'author']

    def display_genre(self):
        """Creates a string for the Genre. This is required to display genre in 
Admin."""
        return ', '.join([genre.name for genre in self.genre.all()[:3]])

    display_genre.short_description = 'Genre'

    def get_absolute_url(self):
        """Returns the url to access a particular book instance."""
        return reverse('book-detail', args=[str(self.id)])

    def __str__(self):
        """String for representing the Model object."""
        return self.title


import uuid # Required for unique book instancesfrom datetime
import date

from django.contrib.auth.models import User # Required to assign User as aborrower


class BookInstance(models.Model):
    """Model representing a specific copy of a book (i.e. that can beborrowed from 
the library)."""
    id = models.UUIDField(primary_key=True, default=uuid.uuid4,
                          help_text="Unique ID for this particular book 
across whole library")
    book = models.ForeignKey('Book', on_delete=models.RESTRICT, null=True)imprint =
    models.CharField(max_length=200)
    due_back = models.DateField(null=True, blank=True)
    borrower = models.ForeignKey(User, on_delete=models.SET_NULL,
null=True, blank=True)

    @property
    def is_overdue(self):
        if self.due_back and date.today() > self.due_back:return True
        return False

    LOAN_STATUS = (
        ('d', 'Maintenance'),
        ('o', 'On loan'),
        ('a', 'Available'),
        ('r', 'Reserved'),
    )

    status = models.CharField(


        max_length=1,
        choices=LOAN_STATU
        S,          blank=True,
        default='d',
        help_text='Book availability')

    class Meta:
        ordering = ['due_back']
        permissions = (("can_mark_returned", "Set book as returned"),)

    def __str__(self):
        """String for representing the Model object."""
        return '{0} ({1})'.format(self.id, self.book.title)


class Author(models.Model):
    """Model representing an author.""" first_name =
    models.CharField(max_length=100)  last_name =
    models.CharField(max_length=100)
    date_of_birth = models.DateField(null=True, blank=True) date_of_death =
    models.DateField('died', null=True, blank=True)

    class Meta:
        ordering = ['last_name', 'first_name']

    def get_absolute_url(self):
        """Returns the url to access a particular author instance."""
        return reverse('author-detail', args=[str(self.id)])

    def __str__(self):
        """String for representing the Model object."""
        return '{0}, {1}'.format(self.last_name, self.first_name)
```

**urls.py**

```
from django.urls import pathfrom .

import views


urlpatterns = [
    path('', views.index, name='index'),
    path('books/', views.BookListView.as_view(), name='books'),
    path('book/<int:pk>', views.BookDetailView.as_view(), name='book-
detail'),
    path('authors/', views.AuthorListView.as_view(), name='authors'),
    path('author/<int:pk>',
         views.AuthorDetailView.as_view(), name='author-detail'),
]


urlpatterns += [
    path('mybooks/', views.LoanedBooksByUserListView.as_view(), name='my-
borrowed'),
    path(r'borrowed/', views.LoanedBooksAllListView.as_view(), name='all-borrowed'),
# Added for challenge
]


# Add URLConf for librarian to renew a book.
```

```
urlpatterns += [
        path('book/<uuid:pk>/renew/', views.renew_book_librarian, name='renew-book-
librarian'),
]


# Add URLConf to create, update, and delete authors
urlpatterns += [
        path('author/create/', views.AuthorCreate.as_view(), name='author-create'),
        path('author/<int:pk>/update/', views.AuthorUpdate.as_view(),
name='author-update'),
        path('author/<int:pk>/delete/', views.AuthorDelete.as_view(),name='author-
delete'),
]

# Add URLConf to create, update, and delete books
urlpatterns += [
        path('book/create/', views.BookCreate.as_view(), name='book-create'),
        path('book/<int:pk>/update/', views.BookUpdate.as_view(), name='book-
update'),
        path('book/<int:pk>/delete/', views.BookDelete.as_view(), name='book-delete'),
]
```

**views.py**

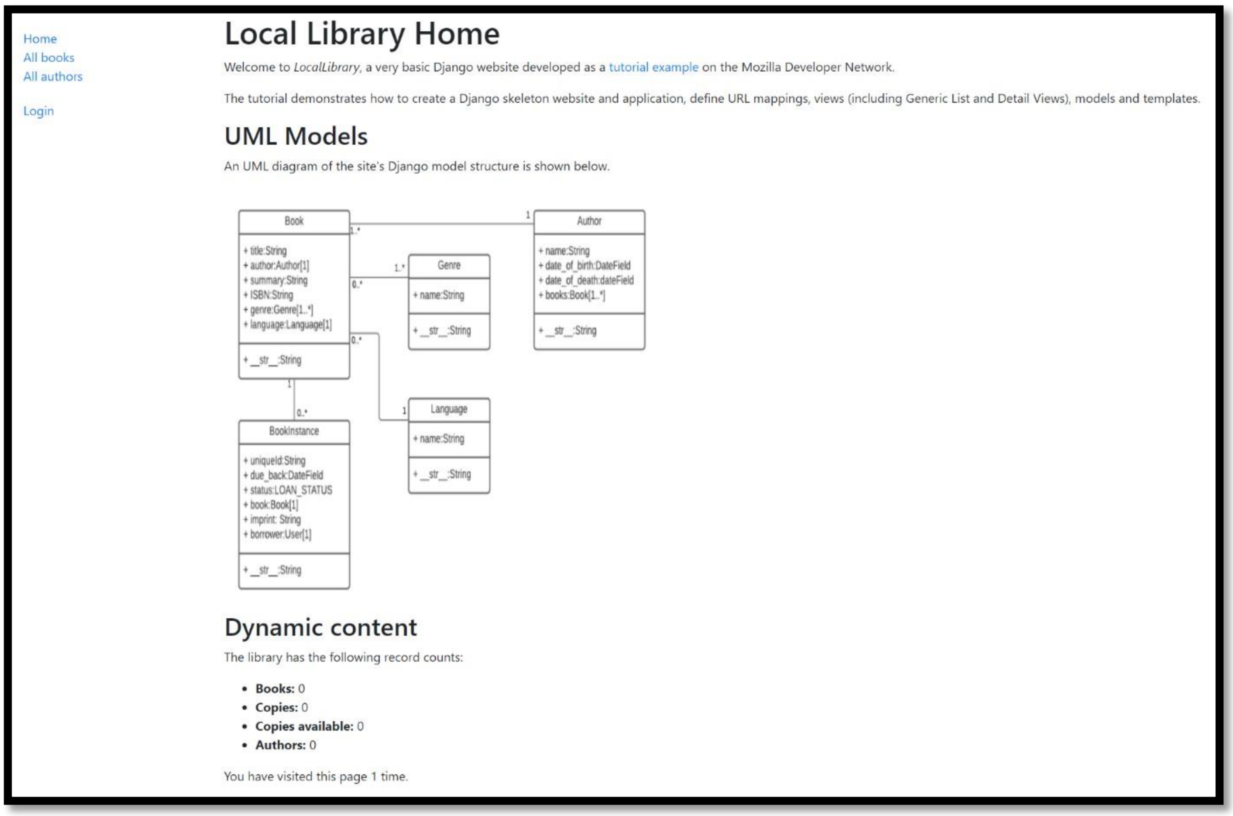
```
from   django.shortcuts   import   render  #

Create your views here.

from .models import Book, Author, BookInstance, Genre


def index(request):
        """View function for home page of site."""
        # Generate counts of some of the main objects num_books =
        Book.objects.all().count()              num_instances              =
        BookInstance.objects.all().count()# Available copies of books
        num_instances_available =
BookInstance.objects.filter(status_exact='a').count()
        num_authors = Author.objects.count() # The 'all()' is implied bydefault.

        # Number of visits to this view, as counted in the session variable. num_visits =
        request.session.get('num_visits', 1) request.session['num_visits'] = num_visits+1

        # Render the HTML template index.html with the data in the contextvariable.
        return             render(
                request,
                'index.html',
                context={'num_books':     num_books,     'num_instances':     num_instances,
                                'num_instances_available': num_instances_available,
'num_authors': num_authors,
                                'num_visits': num_visits},
        )
```

```
from django.views import generic


class BookListView(generic.ListView):
        """Generic class-based view for a list of books."""
        model      =      Book
        paginate_by = 10


class BookDetailView(generic.DetailView):
        """Generic class-based detail view for a book."""
        model = Book


class AuthorListView(generic.ListView):
        """Generic class-based list view for a list of authors."""
        model = Author paginate_by=
        10


class AuthorDetailView(generic.DetailView):
        """Generic class-based detail view for an author."""
        model = Author


from django.contrib.auth.mixins import LoginRequiredMixin


class LoanedBooksByUserListView(LoginRequiredMixin, generic.ListView): """Generic
        class-based view listing books on loan to current user."""model = BookInstance
        template_name = 'catalog/bookinstance_list_borrowed_user.html'paginate_by
        = 10

        def get_queryset(self):return
BookInstance.objects.filter(borrower=self.request.user).filter(status__exac
t='o').order_by('due_back')


# Added as part of challenge!
from django.contrib.auth.mixins import PermissionRequiredMixin


class LoanedBooksAllListView(PermissionRequiredMixin, generic.ListView):
        """Generic class-based view listing all books on loan. Only visible to users with
can_mark_returned permission."""
        model = BookInstance
        permission_required = 'catalog.can_mark_returned' template_name =
        'catalog/bookinstance_list_borrowed_all.html'paginate_by = 10

        def get_queryset(self):return
BookInstance.objects.filter(status_exact='o').order_by('due_back')


from django.shortcuts import get_object_or_404 from
django.http import HttpResponseRedirect from
django.urls import reverse
```

```
import datetime
from django.contrib.auth.decorators import login_required,
permission_required

# from .forms import RenewBookForm
from catalog.forms import RenewBookForm


@login_required
@permission_required('catalog.can_mark_returned', raise_exception=True) def
renew_book_librarian(request, pk):
    """View function for renewing a specific BookInstance by librarian."""
    book_instance = get_object_or_404(BookInstance, pk=pk)

    # If this is a POST request then process the Form data if
    request.method == 'POST':

        # Create a form instance and populate it with data from the request(binding):
        form = RenewBookForm(request.POST)

        # Check if the form is valid:
        if form.is_valid():
            # process the data in form.cleaned_data as required (here we just write it to
the model due_back field)
            book_instance.due_back = form.cleaned_data['renewal_date']
            book_instance.save()

            # redirect to a new URL:
            return HttpResponseRedirect(reverse('all-borrowed'))

    # If this is a GET (or any other method) create the default form else:
        proposed_renewal_date = datetime.date.today() +
datetime.timedelta(weeks=3)
        form = RenewBookForm(initial={'renewal_date':
proposed_renewal_date})

    context = {
        'form': form,
        'book_instance': book_instance,
    }

    return render(request, 'catalog/book_renew_librarian.html', context)


from django.views.generic.edit import CreateView, UpdateView, DeleteView from
django.urls import reverse_lazy
from .models import Author


class AuthorCreate(PermissionRequiredMixin, CreateView):model =
    Author
    fields = ['first_name', 'last_name', 'date_of_birth', 'date_of_death'] initial =
    {'date_of_death': '11/06/2020'}
    permission_required = 'catalog.can_mark_returned'
```

```
  class AuthorUpdate(PermissionRequiredMixin, UpdateView):model =
         Author
         fields = '__all__' # Not recommended (potential security issue if more


fields added)
        permission_required = 'catalog.can_mark_returned'


class AuthorDelete(PermissionRequiredMixin, DeleteView):model =
        Author
        success_url = reverse_lazy('authors') permission_required =
        'catalog.can_mark_returned'


# Classes created for the forms challenge
class BookCreate(PermissionRequiredMixin, CreateView):model =
        Book
        fields = ['title', 'author', 'summary', 'isbn', 'genre', 'language']permission_required =
        'catalog.can_mark_returned'


class BookUpdate(PermissionRequiredMixin, UpdateView):model =
        Book
        fields = ['title', 'author', 'summary', 'isbn', 'genre', 'language']permission_required =
        'catalog.can_mark_returned'


class BookDelete(PermissionRequiredMixin, DeleteView):model =
        Book
        success_url = reverse_lazy('books') permission_required =
        'catalog.can_mark_returned'
```

**OUTPUT:**



Home
All books
All authors

Login

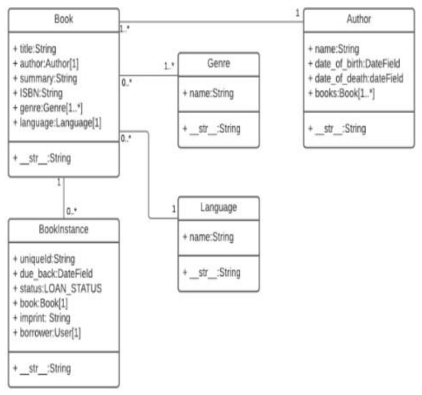
## Local Library Home

Welcome to *LocalLibrary*, a very basic Django website developed as a tutorial example on the Mozilla Developer Network.

The tutorial demonstrates how to create a Django skeleton website and application, define URL mappings, views (including Generic List and Detail Views), models and templates.

## UML Models

An UML diagram of the site's Django model structure is shown below.

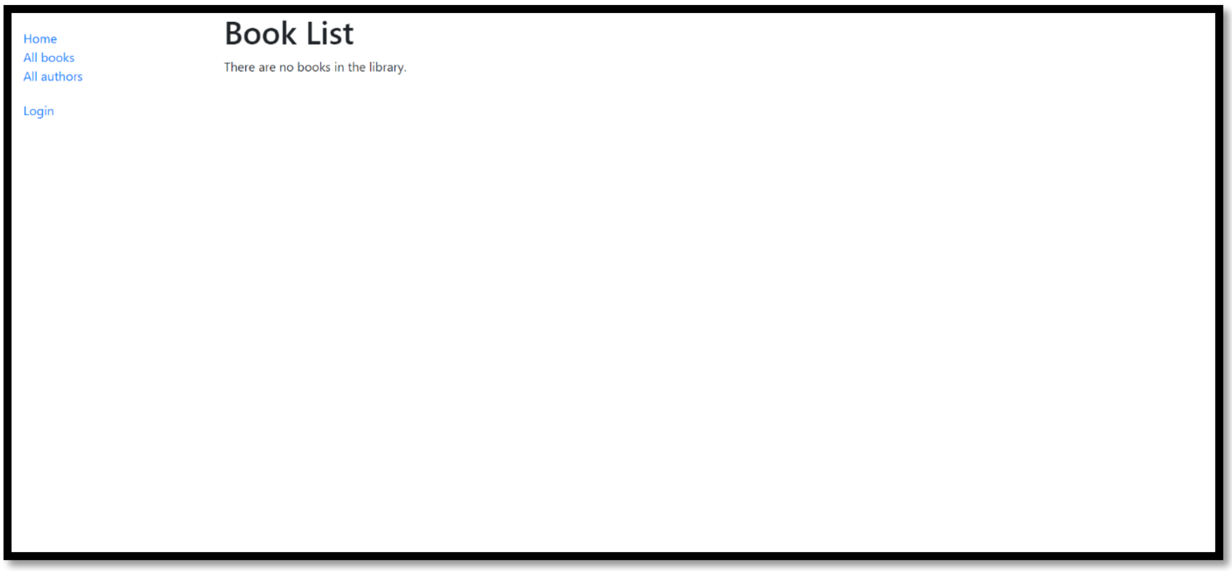


## Dynamic content

The library has the following record counts:

- **Books:** 0
- **Copies:** 0
- **Copies available:** 0
- **Authors:** 0

You have visited this page 1 time.

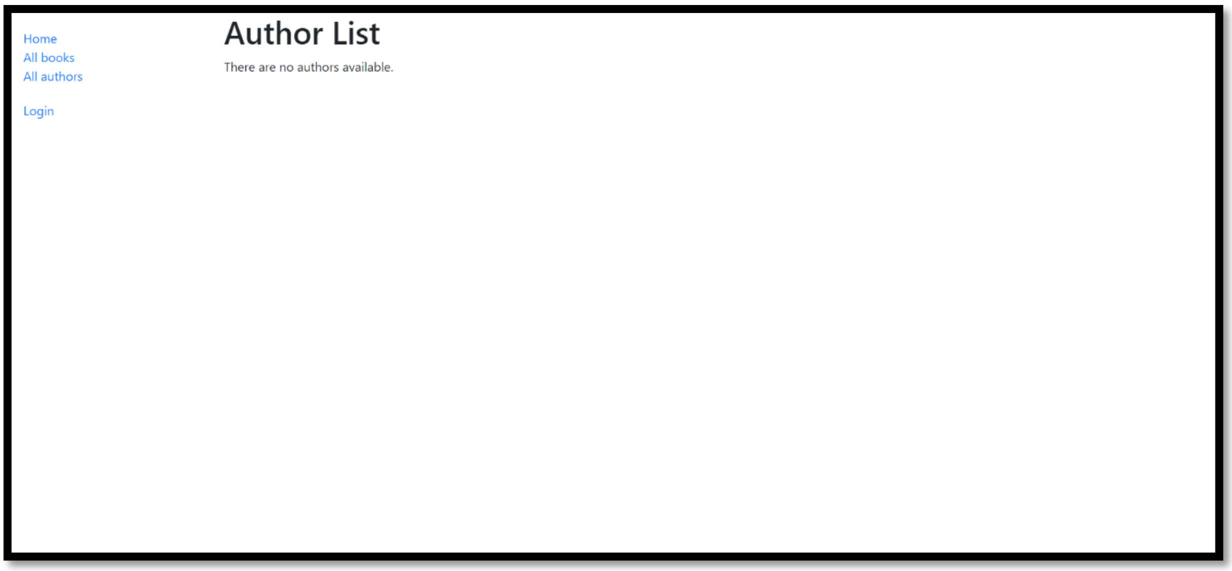


Home
All books
All authors

Login

## Book List

There are no books in the library.

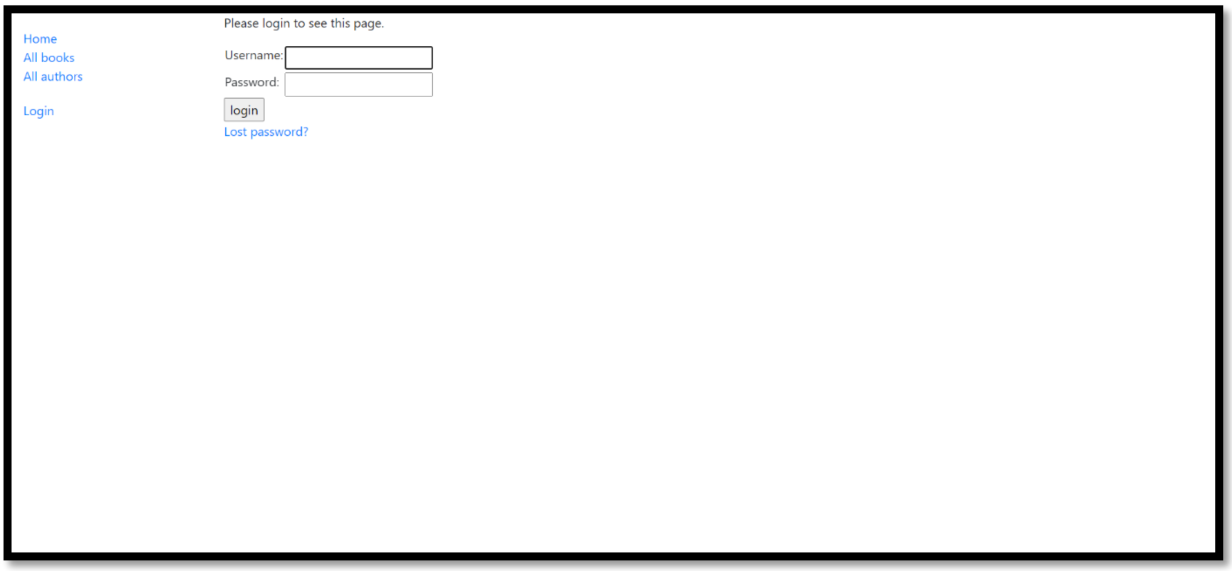


Home
All books
All authors

Login

Author List

There are no authors available.



Home
All books
All authors

Login

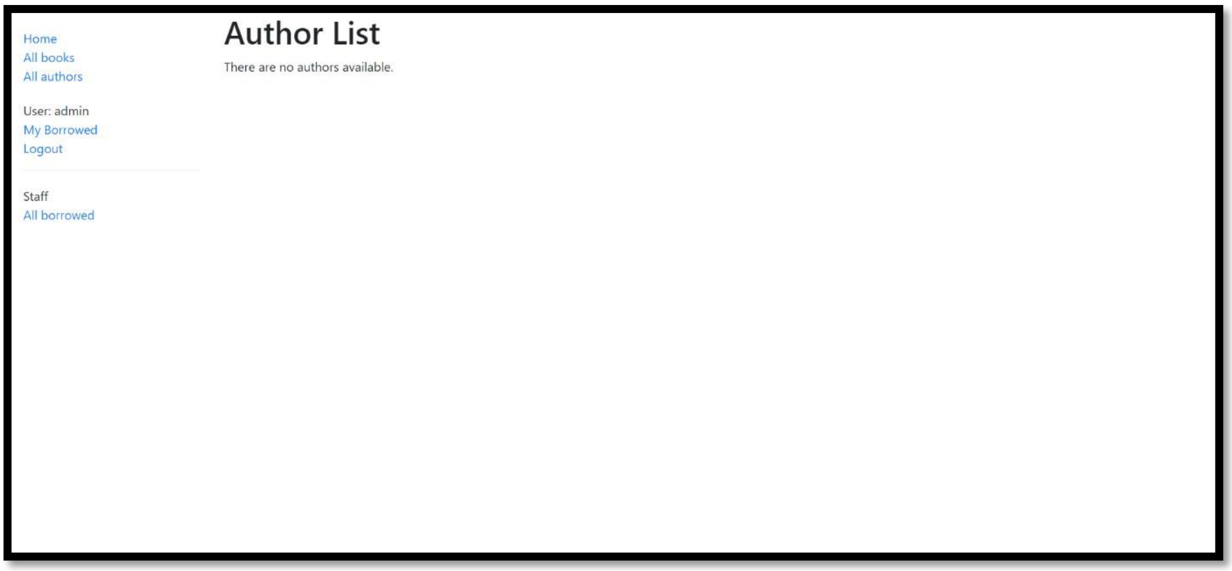
Please login to see this page.

Username:

Password:

login

Lost password?

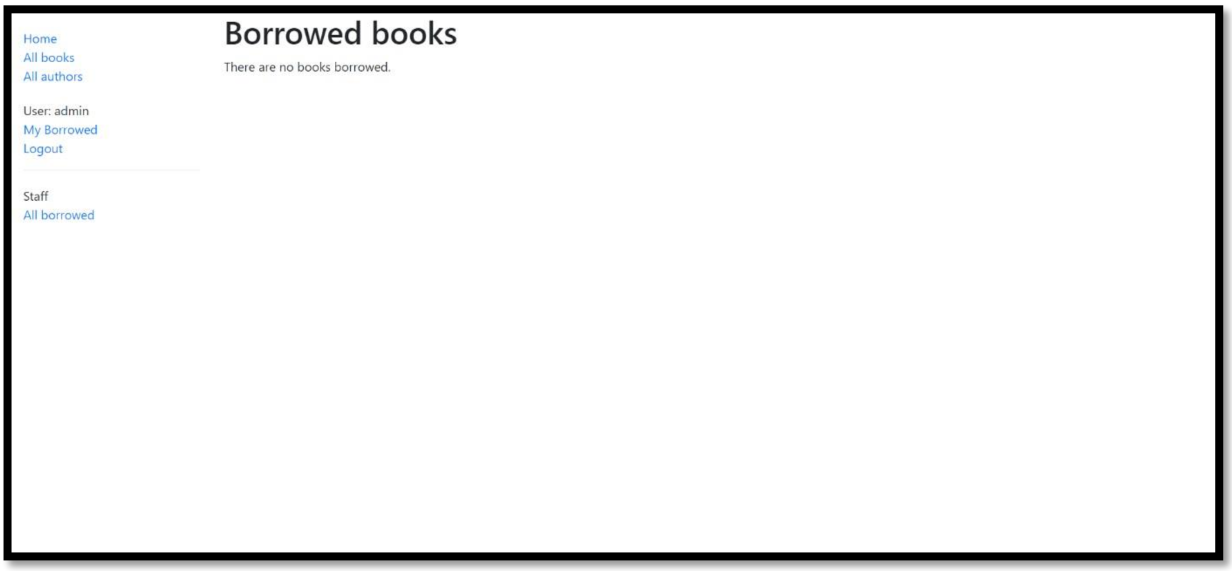

Home
All books
All authors

User: admin
My Borrowed
Logout

Staff
All borrowed

Author List

There are no authors available.


Home
All books
All authors

User: admin
My Borrowed
Logout

Staff
All borrowed

Borrowed books

There are no books borrowed.

**SSBT's College of Engineering & Technology,Bambhori, Jalgaon**

**Department of Information Technology**

Name: ________________________________________________

Class: __________ Division: __________ Batch: _________ Roll No: _____

Subject: Advance Technology Lab-II

Date of Performance:

Date of Completion: Subject Teacher Sign

## Experiment No. 3

## Aim: Create a Ruby on Rails an application

**1. Objective:** to develop an application by using full stack Ruby on rail.

**2. Steps to develop an application:**

**Install Ruby On Rails on Ubuntu**

The first step is to install some dependencies for Ruby and Rails.

To make sure we have everything necessary for Webpacker support in Rails, we're first going to start by adding the Node.js and Yarn repositories to our system before installing them.

```
$sudo apt install curl
$sudo apt-get update
$sudo apt-get install git-core zlib1g-dev build-essential libssl-dev libreadline-dev libyaml-dev libsqlite3-dev sqlite3 libxml2-dev libxslt1-dev libcurl4-openssl-dev software-properties-common libffi-dev nodejs yarn
```

**Installing with rbenv is a simple two step process. First you install rbenv, and then ruby-build:**

```
cd
git clone https://github.com/rbenv/rbenv.git ~/.rbenv
echo 'export PATH="$HOME/.rbenv/bin:$PATH"' >> ~/.bashrc
echo 'eval "$(rbenv init -)"' >> ~/.bashrc
exec $SHELL
```

```
git clone https://github.com/rbenv/ruby-build.git  ~/.rbenv/plugins/ruby-build
echo 'export PATH="$HOME/.rbenv/plugins/ruby-build/bin:$PATH"' >> ~/.bashrc
exec $SHELL

rbenv install 3.0.1
rbenv global 3.0.1
ruby –v
```

**The last step is to install Bundler**

```
gem install bundler
```

**Installing Rails**

Choose the version of Rails you want to install:
6.1.3.2 (Recommended)

```
gem install rails -v 6.1.3.2
```

If you're using rbenv, you'll need to run the following command to make the rails executable available:

```
rbenv rehash
```

Now that you've installed Rails, you can run the rails -v command to make sure you have everything installed correctly:

```
rails -v
# Rails 6.1.3.2
```

If you get a different result for some reason, it means your environment may not be setup properly.

**Setting Up A Database**

Rails ships with sqlite3 as the default database. Chances are you won't want to use it because it's stored as a simple file on disk.

If you're new to Ruby on Rails or databases in general, I strongly recommend setting up PostgreSQL.

If you're coming from PHP, you may already be familiar with MySQL.

**Setting Up MySQL**

Rails ships with sqlite3 as the default database. Chances are you won't want to use it because it's stored as a simple file on disk.

```
sudo apt-get install mysql-server mysql-client libmysqlclient-dev
```

Installing the libmysqlclient-dev gives you the necessary files to compile the mysql2 gem which is what Rails will use to connect to MySQL when you setup your Rails app.

**Setting Up PostgreSQL**

For PostgreSQL, we're going to add a new repository to easily install a recent version of Postgres.

```
sudo apt install postgresql-11 libpq-dev
```

The postgres installation doesn't setup a user for you, so you'll need to follow these steps to create a user with permission to create databases. Feel free to replace chris with your username.

```
sudo -u postgres createuser chris -s
```

# If you would like to set a password for the user, you can do the followingsudo -u
postgres psql
postgres=# \password chris

## Final Steps

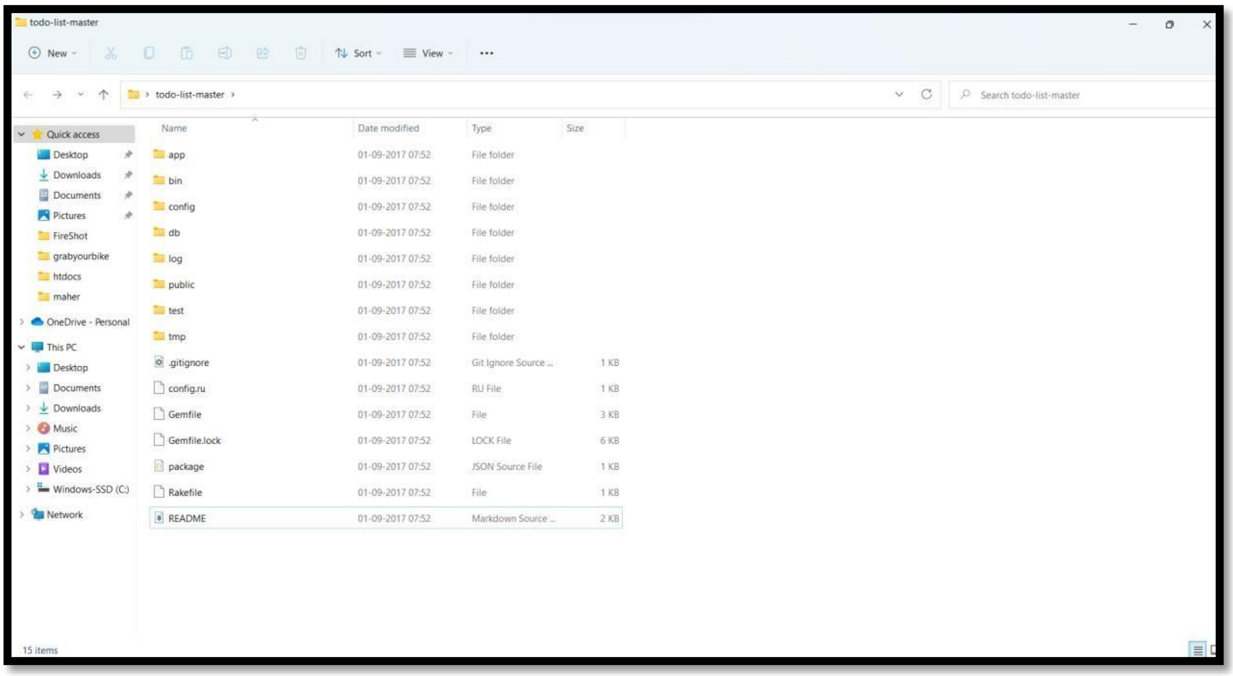
And now for the moment of truth. Let's create your first Rails application: #### If
you want to use SQLite (not recommended)
rails new myapp
#### If you want to use MySQL rails new
myapp -d mysql
#### If you want to use Postgres
# Note that this will expect a postgres user with the same username
# as your app, you may need to edit config/database.yml to match the# user
you created earlier
rails new myapp -d postgresql
# Move into the application directorycd
myapp
# If you setup MySQL or Postgres with a username/password, modify the
# config/database.yml file to contain the username/password that you specified#
Create the database
rake db:create rails
server
You can now visit http://localhost:3000 to view your new website!
Now that you've got your machine setup, it's time to start building some Rails applications.
If you received an error that said Access denied for user 'root'@'localhost' (using password: NO) then you need to update your config/database.yml file to match the database username and password.

**Outcomes:**
**Able to deploy project in Ruby on rail**

**Questions:**

1. What is ruby on rails.
2. Write steps to install ruby on rails on ubuntu.
3. Explain 'Yield'+ in ruby on rail

## Project Directory:



| Name | Date modified | Type | Size |
|---|---|---|---|
| app | 01-09-2017 07:52 | File folder | |
| bin | 01-09-2017 07:52 | File folder | |
| config | 01-09-2017 07:52 | File folder | |
| db | 01-09-2017 07:52 | File folder | |
| log | 01-09-2017 07:52 | File folder | |
| public | 01-09-2017 07:52 | File folder | |
| test | 01-09-2017 07:52 | File folder | |
| tmp | 01-09-2017 07:52 | File folder | |
| .gitignore | 01-09-2017 07:52 | Git Ignore Source ... | 1 KB |
| config.ru | 01-09-2017 07:52 | RU File | 1 KB |
| Gemfile | 01-09-2017 07:52 | File | 3 KB |
| Gemfile.lock | 01-09-2017 07:52 | LOCK File | 6 KB |
| package | 01-09-2017 07:52 | JSON Source File | 1 KB |
| Rakefile | 01-09-2017 07:52 | File | 1 KB |
| README | 01-09-2017 07:52 | Markdown Source ... | 2 KB |

### todo-list/app/models/application_record.rb

```
class ApplicationRecord < ActiveRecord::Base
  self.abstract_class = true
end
```

### **todo-list**/app/models/**task.rb**

```
class Task < ApplicationRecord
  belongs_to :user

  validates :task, presence: true,
                   length: { minimum: 3 }

  scope :completed, -> {
    where(:completed => true)
  }

  scope :todo, -> {
    where(:completed => false)
  }
end
```

**todo-list**/app/models/**user.rb**

```
class User < ApplicationRecord
  # Include default devise modules. Others available are:
  # :confirmable, :lockable, :timeoutable and :omniauthable
  devise :database_authenticatable, :registerable,
         :recoverable, :rememberable, :trackable, :validatable

  has_many :tasks
end
```

**New.html.erb**

```
<h1 class="task-header">
  New task
</h1>

<%= link_to 'Go back', tasks_path, class: ['action-button', 'back-button'] %>

<%= link_to 'Log out', destroy_user_session_path, method: :delete, class:
['action-button', 'log-out-button'] %>

<%= render 'form', task: @task, readonly: false %>
```

**Show.html.erb**

```
<h1 class="task-header">
  <%= @task.task %>
</h1>

<%= link_to 'Go back', tasks_path, class: ['action-button', 'back-button'] %>

<%= render 'form', task: @task, readonly: true %>
```

**Index.html.erb**

```
<h1 class="tasks-header">
  iTasks
</h1>

<p class="notice-container"><%= notice %></p>
```

```
<%= link_to 'Log out', destroy_user_session_path, method: :delete, class:
['action-button', 'log-out-button'] %>�

<div class="tasks-container">
  <div class="tasks-todo">
    <h2 class="tasks-status">
      To-Do
    </h2>

    <ul class="tasks-list">
      <% @tasks.todo.each do |task| %>
        <% if task.user == current_user %>
          <li class="tasks-item">
            <%= render 'task', task: task %>
            <div class="task-buttons">
              <%= link_to fa_icon("pencil"), edit_task_path(task), class:
'task-button' %>
              <%= link_to fa_icon("trash-o"), task, class: 'task-button',
                          method: :delete, data: { confirm: 'Are you sure?' }
%>
            </div>
          </li>
        <% end %>
      <% end %>
    </ul>
  </div>

  <div class="tasks-buttons">
    <%= link_to 'New task', new_task_path, class: "action-button" %>
  </div>

  <div class="tasks-completed">
    <h2 class="tasks-status">
      Completed
    </h2>

    <ul class="tasks-list">
      <% @tasks.completed.each do |task| %>
        <% if task.user == current_user %>
          <li class="tasks-item">
            <%= render 'task', task: task %>
            <div class="task-buttons">
              <%= link_to fa_icon("trash-o"), task, class: 'task-button',
                          method: :delete, data: { confirm: 'Are you sure?' }
%>
            </div>
          </li>
        <% end %>
      <% end %>
    </ul>
  </div>
</div>
```

**_tasl.html.erb**

```
<%= link_to task, class: 'task-name' do %>
  <%= task.task %>
  <% if task.due_date.present? %>
    <time class="task-time <%= task.due_date <= Date.today ? 'is-due' : '' %>"
datetime="<%= task.due_date.strftime('%FT%T') %>">
      <%= task.due_date.strftime("%m/%d") %>
    </time>
  <% end %>
<% end %>
```

**Edit.html.erb**

```
<h1 class="task-header">
  Editing <%= @task.task %>
</h1>

<%= link_to 'Go back', tasks_path, class: ['action-button', 'back-button'] %>

<%= link_to 'Log out', destroy_user_session_path, method: :delete, class:
['action-button',  'log-out-button'] %>�

<%= render 'form', task: @task, readonly: false %>
```

**_form.html.erb**

```
<%= form_with(model: task, local: true) do |form| %>
  <% if task.errors.any? %>
    <div class="errors-container">
      <h2>
        <%= pluralize(task.errors.count, "error") %> prohibited this task from
being saved:
      </h2>

      <ul class="errors-list">
        <% task.errors.full_messages.each do |message| %>
          <li class="errors-item">
            <%= message %>
          </li>
        <% end %>
      </ul>
    </div>
  <% end %>

  <div class="form-container">
    <div class="form-field">
      <div class="form-label-container">
        <%= form.label :task, class: 'form-label' %>
      </div>
      <div class="form-input-container">
        <%= form.text_field :task, id: :task_task, class: 'form-input',
disabled: readonly %>
      </div>
    </div>

    <div class="field form-field">
      <div class="form-label-container">
        <%= form.label :details, class: 'form-label' %>
      </div>
      <div class="form-input-container">
        <%= form.text_area :details, id: :task_details, class: 'form-input',
disabled: readonly %>
      </div>
    </div>

    <div class="form-field">
      <div class="form-label-container">
        <%= form.label :due_date, class: 'form-label' %>
      </div>
      <div class="form-input-container">
        <%= form.date_field :due_date, id: :task_due_date, class: 'form-
input', disabled: readonly %>
      </div>
    </div>

    <div class="field form-field">
      <div class="form-label-container">
        <%= form.label :completed, class: 'form-label' %>
      </div>
      <div class="form-input-container">
        <%= form.check_box :completed, id: :task_completed, class: 'form-
input', disabled: readonly %>
      </div>
    </div>

    <% unless readonly %>
      <div class="field form-buttons">
```

```
        <%= form.submit class: 'action-button' %>
      </div>
    <% end %>
  </div>
<% end %>
```

**Application.html.erb**

```
<!DOCTYPE html>
<html>
  <head>
    <title>iTasks</title>
    <%= csrf_meta_tags %>

    <%= stylesheet_link_tag    'application',
'https://fonts.googleapis.com/css?family=Raleway', media: 'all', 'data-
turbolinks-track': 'reload' %>
    <%= javascript_include_tag 'application', 'data-turbolinks-track':
'reload' %>
  </head>

  <body>
    <%= yield %>
  </body>
</html>
```

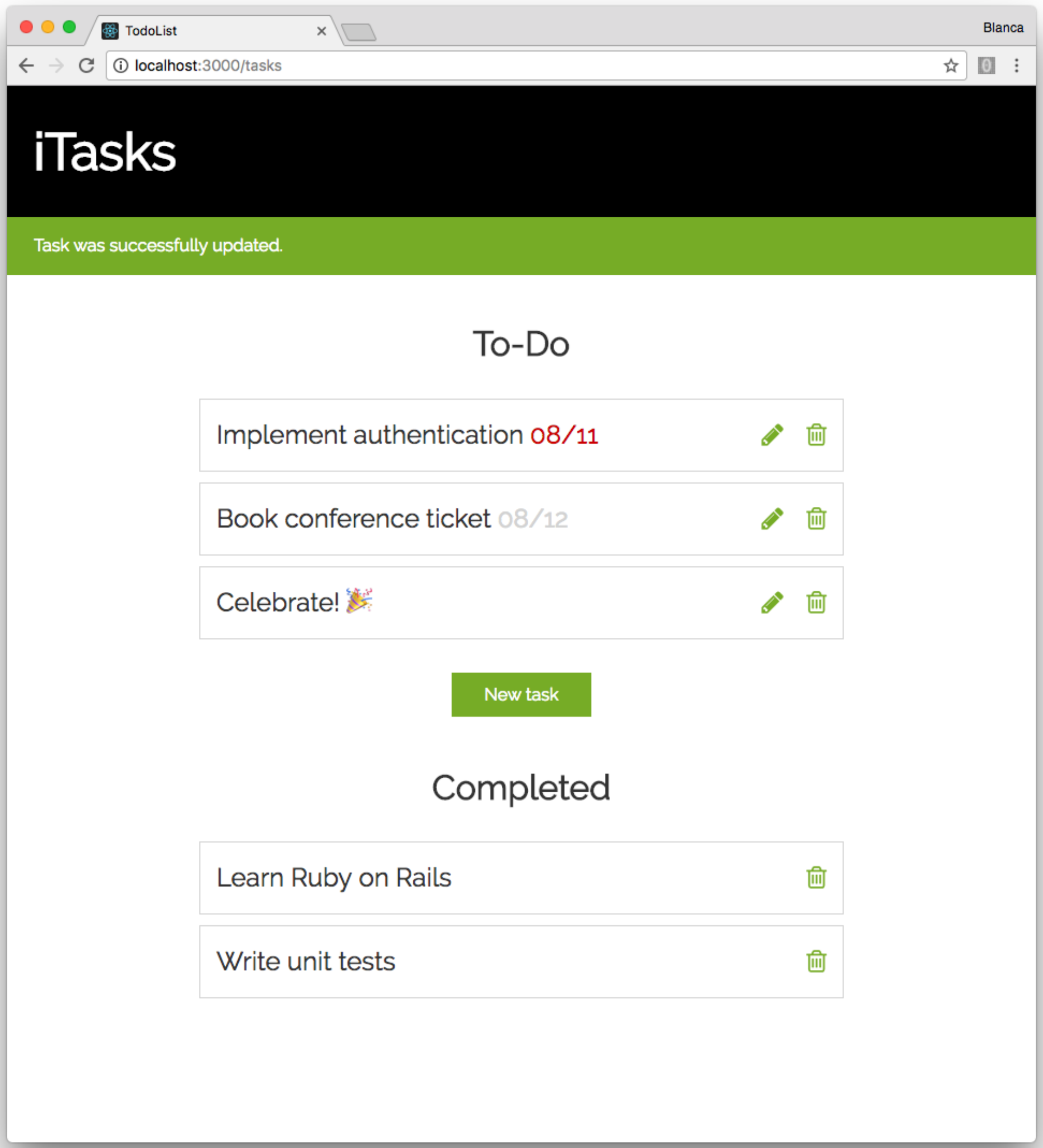
**Mailer.html.erb**

```
<!DOCTYPE html>
<html>
  <head>
    <meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
    <style>
      /* Email styles need to be inline */
    </style>
  </head>

  <body>
    <%= yield %>
  </body>
</html>
```

**Functionality:**

- As a user, I can add a task to the list.
- As a user, I can see all the tasks on the list in an overview.
- As a user, I can drill into a task to see more information about the task.
- As a user, I can delete a task.
- As a user, I can mark a task as completed.
- As a user, when I see all the tasks in the overview, if today's date is past the task'sdeadline, highlight it.

**OUTPUT:**



TodoList

localhost:3000/tasks

Blanca

iTasks

Task was successfully updated.

To-Do

Implement authentication 08/11

Book conference ticket 08/12

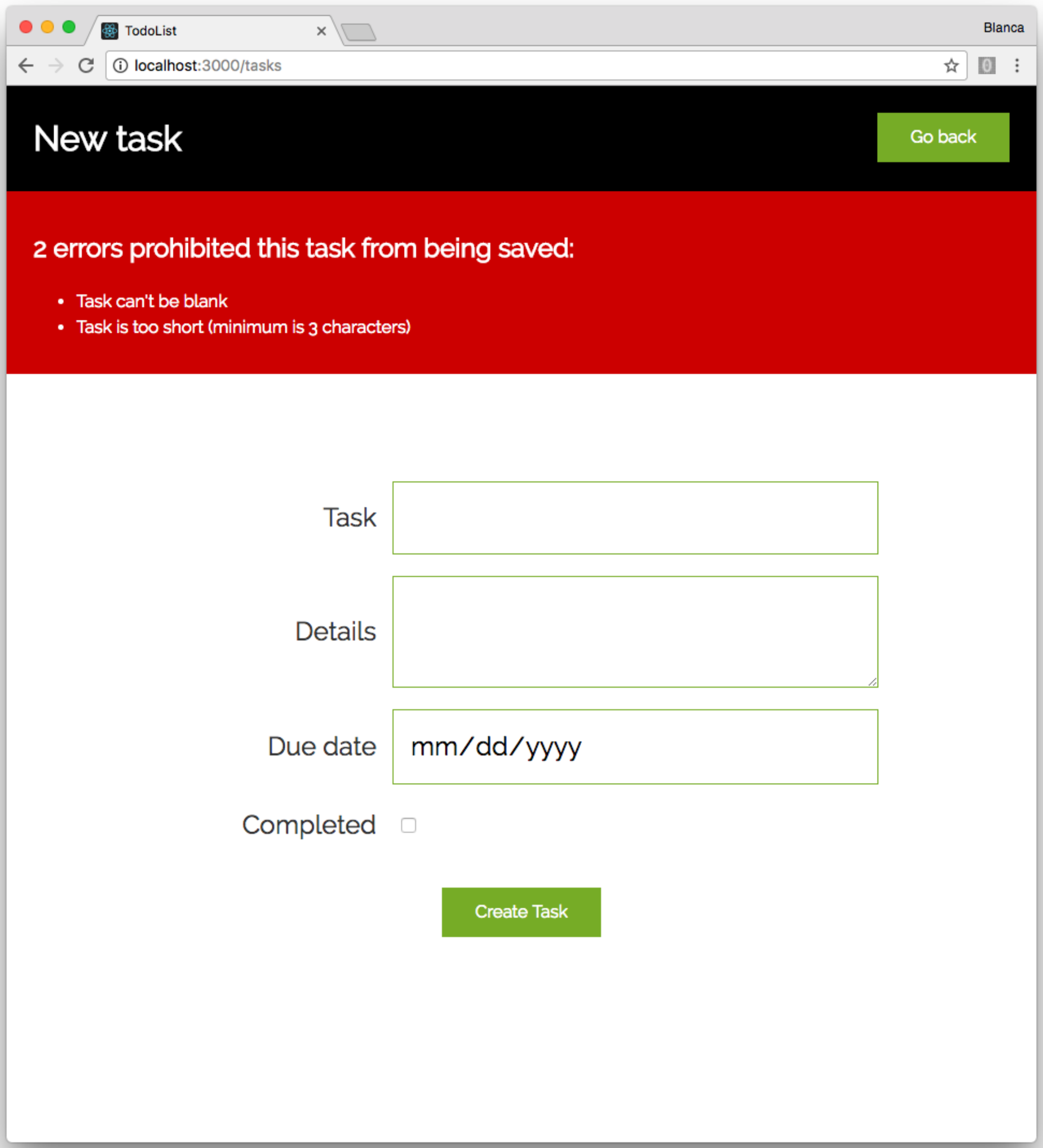
Celebrate! 🎉

New task

Completed

Learn Ruby on Rails

Write unit tests



New task

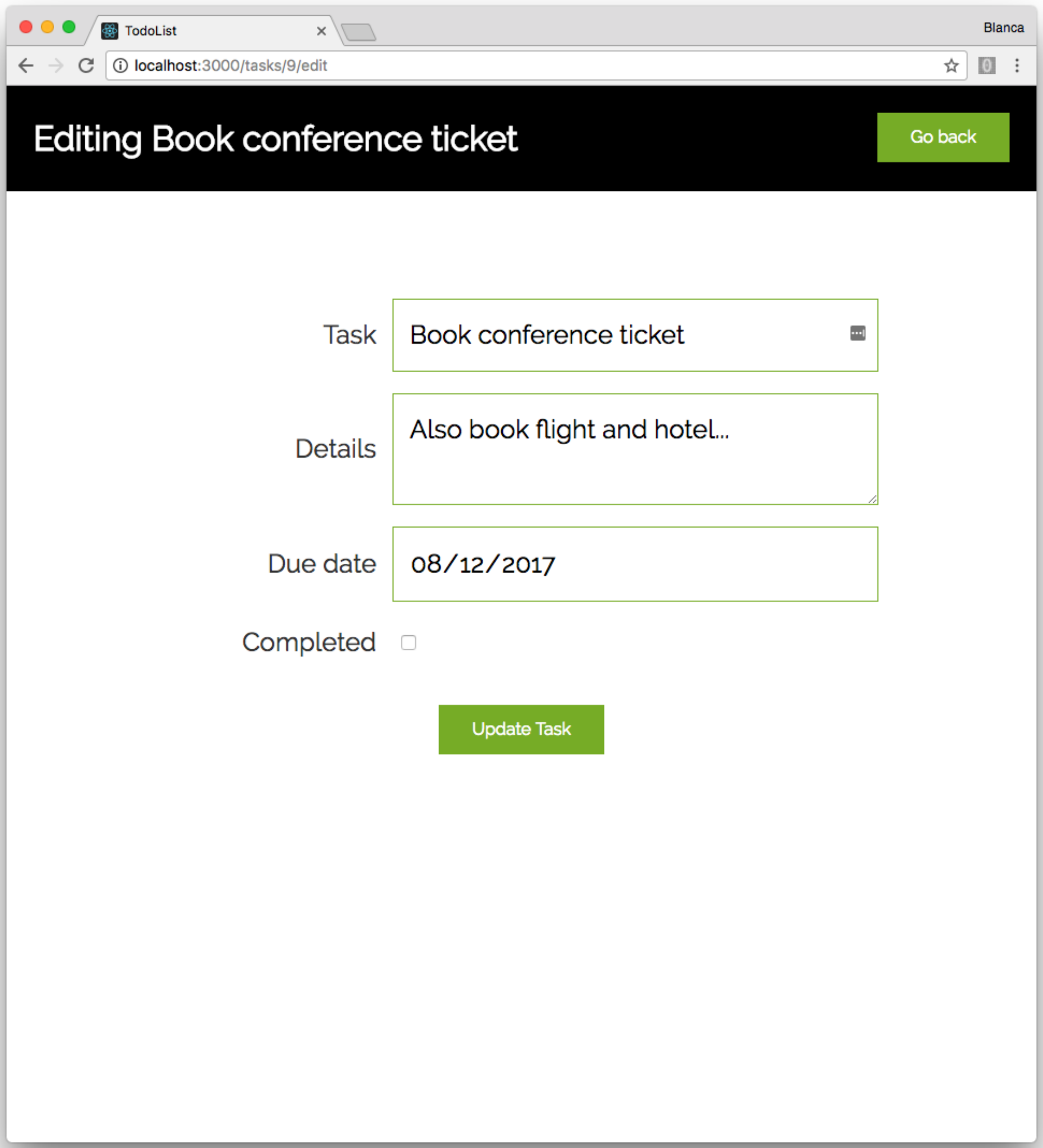
Go back

2 errors prohibited this task from being saved:

- Task can't be blank
- Task is too short (minimum is 3 characters)

| | |
|---|---|
| Task | |
| Details | |
| Due date | mm/dd/yyyy |
| Completed | ☐ |

Create Task



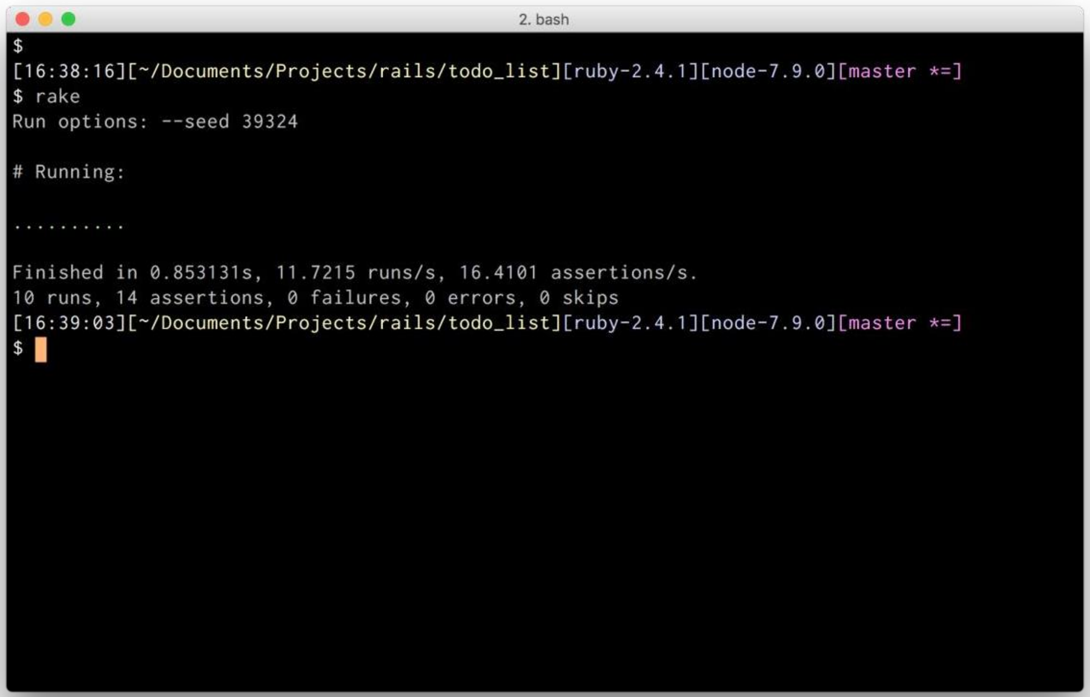
Editing Book conference ticket

Task: Book conference ticket

Details: Also book flight and hotel...

Due date: 08/12/2017

Completed: ☐


2. bash

```
$
[16:38:16][~/Documents/Projects/rails/todo_list][ruby-2.4.1][node-7.9.0][master *=]
$ rake
Run options: --seed 39324

# Running:

..........

Finished in 0.853131s, 11.7215 runs/s, 16.4101 assertions/s.
10 runs, 14 assertions, 0 failures, 0 errors, 0 skips
[16:39:03][~/Documents/Projects/rails/todo_list][ruby-2.4.1][node-7.9.0][master *=]
$
```