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app.py

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from flask import Flask, render\_template,request

import pandas as pd

import matplotlib.pyplot as plt

import io

import base64

import numpy as np

app = Flask(\_\_name\_\_)

itemsq1 = ['Average Salary Of Each Position', 'Total number of male and female employee', 'Salary earn by experience example between 10 to 15 year', 'Num of Position in Company','Which position is better in terms of salary']

itemsq2 = ['Rating of Products','Top 10 Products by Total','Price Growth Total']

plt.switch\_backend('Agg')

@app.route("/")

def index():

return render\_template("welcome.html",itemsq1=itemsq1,itemsq2=itemsq2)

@app.route("/question-1")

def question1():

plot\_urls = []

empDf = pd.read\_csv("./dataset/Employee\_data.csv")

avgSalary = empDf.groupby('Position')['Salary'].mean()

# Q1

img = io.BytesIO()

plt.figure(figsize=(12, 8))

plt.bar(avgSalary.index, avgSalary, color='orange',)

plt.xlabel('Position', fontsize=20)

plt.ylabel('Average Salary', fontsize=20)

plt.xticks(rotation=90, fontsize=12)

plt.yticks(fontsize=12)

plt.tight\_layout()

plt.savefig(img,format='png')

plt.close()

img.seek(0)

plot\_urls.append(base64.b64encode(img.getvalue()).decode('utf-8'))

img.truncate(0)

img.seek(0)

# Q2

plt.figure(figsize=(12, 8))

male = empDf[empDf['Gender'] == 'M'].count()['Gender']

female = empDf[empDf['Gender'] == 'F'].count()['Gender']

plt.pie([male,female],colors=['red','pink'], labels=['Male', 'Female'],autopct='%1.1f%%',textprops={'fontsize':20})

plt.tight\_layout()

plt.savefig(img,format='png')

plt.close()

img.seek(0)

plot\_urls.append(base64.b64encode(img.getvalue()).decode('utf-8'))

img.truncate(0)

img.seek(0)

# Q3

plt.figure(figsize=(12, 8))

experienceDf = empDf[(empDf['Experience (Years)'] >= 10) & (empDf['Experience (Years)'] <= 15)][['Position','Salary']]

plt.bar(experienceDf['Position'],experienceDf['Salary'], color='mediumorchid')

plt.xlabel('Position',fontsize=15)

plt.ylabel('Average Salary',fontsize=15)

plt.xticks(rotation=90)

plt.tight\_layout()

plt.savefig(img,format='png')

plt.close()

img.seek(0)

plot\_urls.append(base64.b64encode(img.getvalue()).decode('utf-8'))

img.truncate(0)

img.seek(0)

# Q4

noOfPosition = dict()

for i in empDf['Position'].unique():

noOfPosition[i] = int(empDf[empDf['Position'] ==i]['Position'].count())

plt.figure(figsize=(12, 8))

plt.bar(noOfPosition.keys(),noOfPosition.values(),color=['limegreen'])

plt.xlabel('Position',fontsize=15)

plt.ylabel('No. Of Position',fontsize=15)

plt.xticks(rotation=90)

plt.tight\_layout()

plt.savefig(img,format='png')

plt.close()

img.seek(0)

plot\_urls.append(base64.b64encode(img.getvalue()).decode('utf-8'))

img.truncate(0)

img.seek(0)

# Q5

plt.figure(figsize=(12, 8))

avg\_salary = empDf.groupby('Position')['Salary'].mean()

labels = avg\_salary.index

sizes = avg\_salary.values

plt.figure(figsize=(8, 6))

plt.pie(sizes, labels=labels, autopct='%1.1f%%', startangle=90)

plt.axis('equal')

plt.tight\_layout()

plt.savefig(img,format='png')

plt.close()

img.seek(0)

plot\_urls.append(base64.b64encode(img.getvalue()).decode('utf-8'))

img.truncate(0)

img.seek(0)

return render\_template("q1.html",image=plot\_urls,label=itemsq1)

@app.route("/question-2")

def question2():

plot\_urls = []

fkDf = pd.read\_excel("./dataset/Flipkart-Laptops.xlsx")

fkDf.replace('NIL', np.nan, inplace=True)

fkDf.drop\_duplicates(inplace=True)

fkDf.dropna(how='all',axis=1,inplace=True)

fkDf.dropna(inplace=True)

# NOTE - Drop Unused columns

fkDf.drop(['Description','Link'],axis=1,inplace=True)

# NOTE - Convert String into number

fkDf['Rating'] = fkDf['Rating'].str.replace(' Ratings','').str.replace(',','').astype(float)

fkDf['Reviews'] = fkDf['Reviews'].str.replace(' Reviews','').str.replace(',','').astype(float)

fkDf['Discount price'] = fkDf['Discount price'].astype(float)

img = io.BytesIO()

# Q1

rate = dict()

label = []

for i in range(5):

rate[i] = fkDf[(fkDf['Rating'] >= i)&(fkDf['Rating'] <= i+1)].count()['Rating']

label.append(f'{i+1} Rating {rate[list(rate.keys())[-1]]}')

total = sum(rate.values())

percentage = [(i/total)\*100 for i in rate.values()]

print(sum(percentage))

plt.figure(figsize=(12, 8))

plt.pie(percentage,labels=label,explode=tuple(0.05 for \_ in range(len(rate))))

plt.tight\_layout()

plt.savefig(img,format='png')

plt.close()

img.seek(0)

plot\_urls.append(base64.b64encode(img.getvalue()).decode('utf-8'))

img.truncate(0)

img.seek(0)

# Q2

plt.figure(figsize=(12, 8))

fkDf['Total'] = fkDf['Actual price'] - fkDf['Discount price']

top10DF= fkDf.sort\_values(by='Total', ascending=False).head(20)

plt.bar(top10DF['ProductID'],top10DF['Total'])

plt.xticks(rotation=90)

plt.xlabel('Product ID')

plt.ylabel('Total')

plt.title('Top 10 Products by Total')

plt.tight\_layout()

plt.savefig(img,format='png')

plt.close()

img.seek(0)

plot\_urls.append(base64.b64encode(img.getvalue()).decode('utf-8'))

img.truncate(0)

img.seek(0)

# Q3

plt.figure(figsize=(12, 8))

plt.plot(fkDf['ProductID'].head(20), fkDf['Total'].head(20), linestyle='--', color='g')

plt.ylabel("Y-axis Label")

plt.title("Simple Line Chart")

plt.xticks([])

plt.tight\_layout()

plt.savefig(img,format='png')

plt.close()

img.seek(0)

plot\_urls.append(base64.b64encode(img.getvalue()).decode('utf-8'))

img.truncate(0)

img.seek(0)

return render\_template("q1.html",image=plot\_urls,label=itemsq2)

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

def graph():

title = request.form.get('title')

src = request.form.get('src')

return render\_template('graph.html', title=title, src=src)

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

app.run(debug=True)

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util/footer.html

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<footer class="bg-indigo-900 text-white mt-10">

<div class="container mx-auto px-4 py-4 text-center">

<h2 class="text-lg font-bold">Assignment-3</h2>

<p class="text-sm">© 2024 Your Name. All rights reserved.</p>

</div>

</footer>

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util/header.html

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<header class="bg-indigo-700 text-white fixed w-full">

<div class="container mx-auto px-4 py-4 flex justify-between items-center">

<div class="text-lg font-bold">

<a href="{{ url\_for('index') }}" class="hover:text-gray-400">Assignment-3</a>

</div>

<nav>

<ul class="flex space-x-6">

<li>

<a href="{{ url\_for('index') }}" class="hover:text-indigo-400 hover:underline hover:underline-offset-4">Home</a>

</li>

<li>

<a href="{{ url\_for('question1')}}" class="hover:text-indigo-400 hover:underline hover:underline-offset-4">Question-1</a>

</li>

<li>

<a href="{{ url\_for('question2')}}" class="hover:text-indigo-400 hover:underline hover:underline-offset-4">Question-2</a>

</li>

</ul>

</nav>

</div>

</header>

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util/macros.html

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{% macro image(title, src) %}

<div class="mb-10">

<div class="text-2xl font-bold">{{ title }}</div>

<form action="/graph" method="POST">

<input type="hidden" name="title" value="{{ title }}">

<input type="hidden" name="src" value="{{ src }}">

<button type="submit">

<img class="h-auto w-full max-w-4xl" src="data:image/png;base64,{{ src }}" alt="{{ title }}">

</button>

</form>

</div>

{% endmacro %}

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graph.html

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{% extends "index.html" %}

{% block title %}Graphs {% endblock %}

{% block body %}

<div class="text-3xl font-bold">{{ title }}</h1>

<img src="data:image/png;base64,{{ src }}">

{% endblock %}

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index.html

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<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<script src="https://cdn.tailwindcss.com"></script>

<title>{% block title required %}{% endblock %} - Assignment-3</title>

</head>

<body>

{% include 'util/header.html' %}

<div class="p-3 pt-20 min-h-screen">

{% block body required %} {% endblock %}

</div>

{% include 'util/footer.html' %}

</body>

</html>

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q1.html

========================================================================

{% extends "index.html" %}

{% block title %}Q.1{% endblock %}

{% block body %}

{% import 'util/macros.html' as macros %}

<div>

<div class="grid grid-cols-2 space-x-5">

{% for img in image %}

{{ macros.image(label[loop.index-1], img) }}

{% endfor%}

</div>

</div>

{% endblock %}

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q2.html

========================================================================

{% extends "index.html" %}

{% block title %}Q.2{% endblock %}

{% block body %}

{% import 'util/macros.html' as macros %}

<div>

<div class="grid grid-cols-2 space-x-5">

{% for img in image %}

{{ macros.image(label[loop.index-1], img) }}

{% endfor%}

</div>

</div>

{% endblock %}

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welcome.html

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{% extends "index.html" %}

{% block title %}Welcome{% endblock %}

{% block body %}

<div class="grid grid-cols-2 space-x-10">

<div>

<div class="text-3xl mt-5 mb-5">Question - 1</div>

<div class="font-bold text-lg mb-2">List of Charts</div>

<ul class="p-5 bg-indigo-100 w-full text-indigo-900 rounded-lg font-mono border-2 border-indigo-300">

{% for item in itemsq1 %}

<li class="mb-4">{{ loop.index }}) {{ item }}.</li>

{% endfor %}

</ul>

</div>

<div>

<div class="text-3xl mt-5 mb-5">Question - 2</div>

<div class="font-bold text-lg mb-2">List of Charts</div>

<ul class="p-5 bg-indigo-100 w-full text-indigo-900 rounded-lg font-mono border-2 border-indigo-300">

{% for item in itemsq2 %}

<li class="mb-4">{{ loop.index }}) {{ item }}.</li>

{% endfor %}

</ul>

</div>

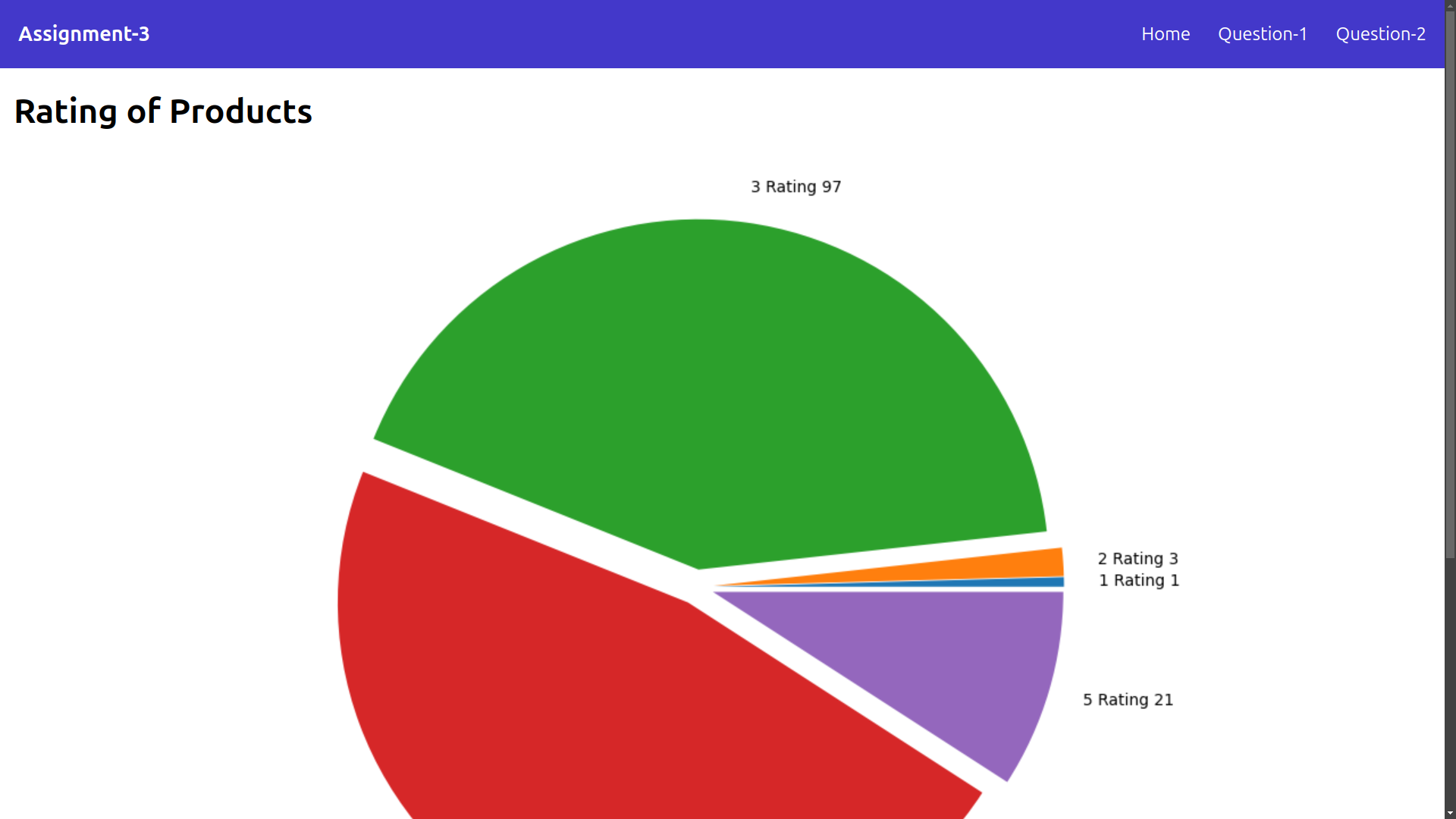
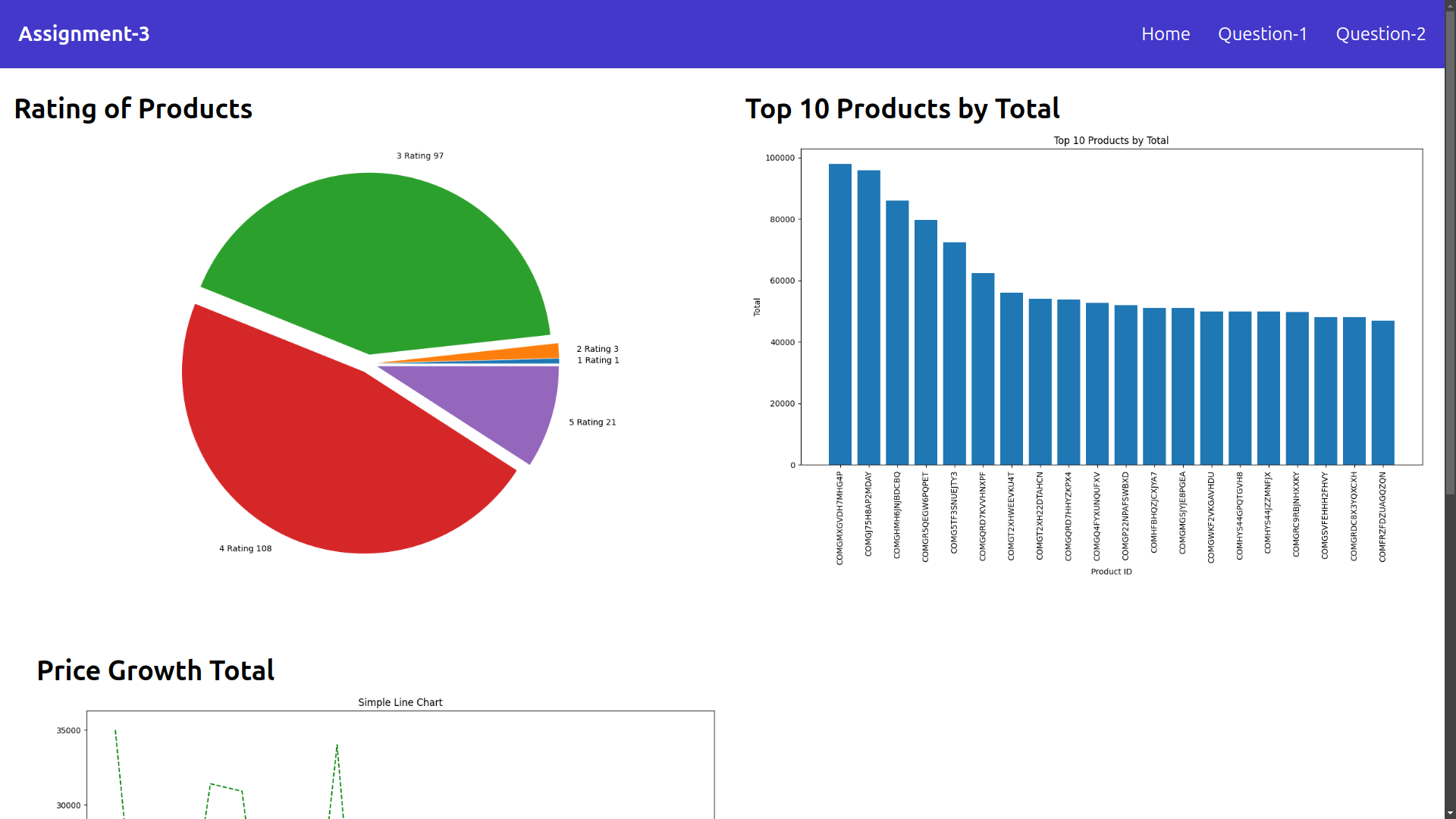
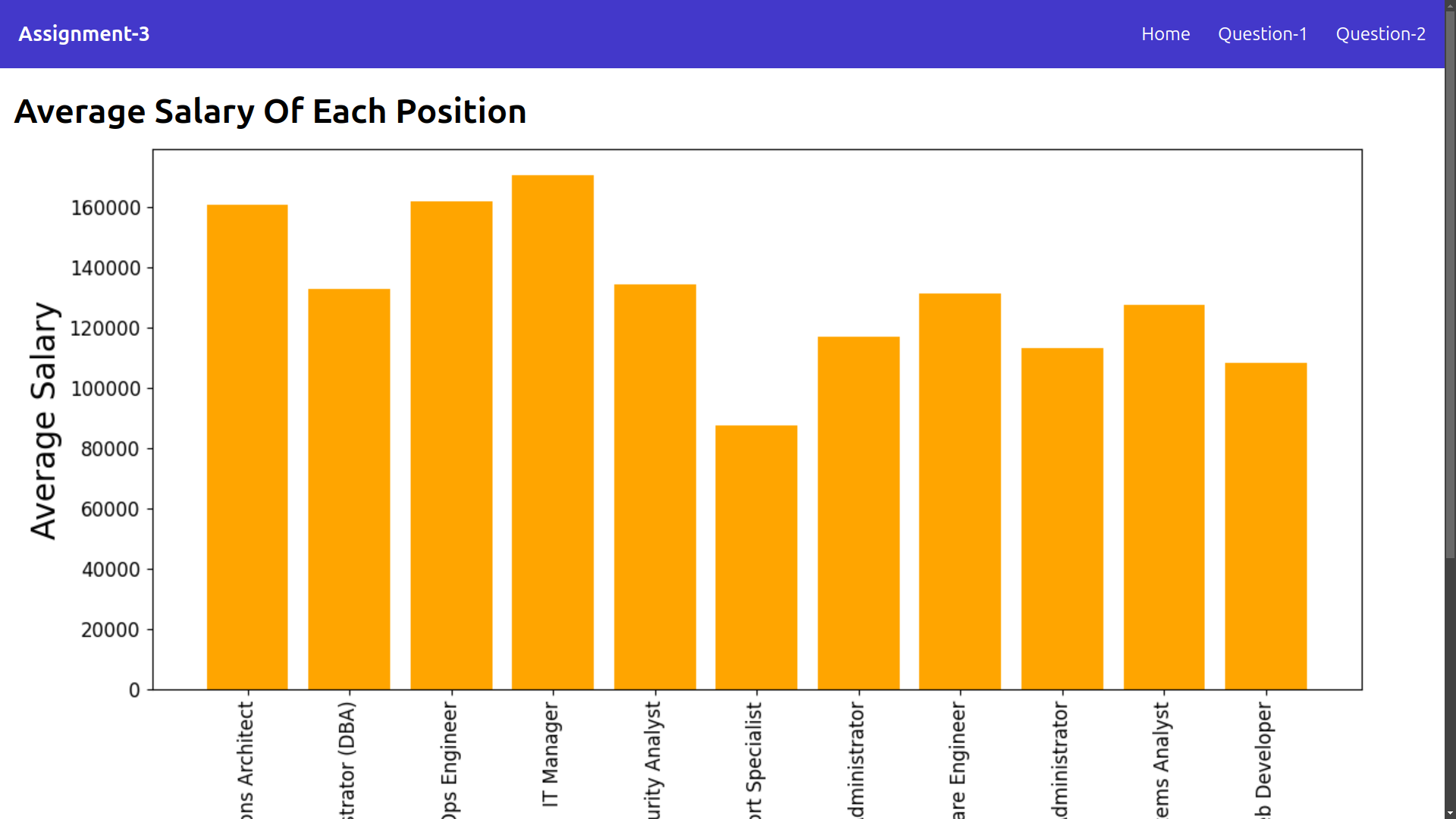
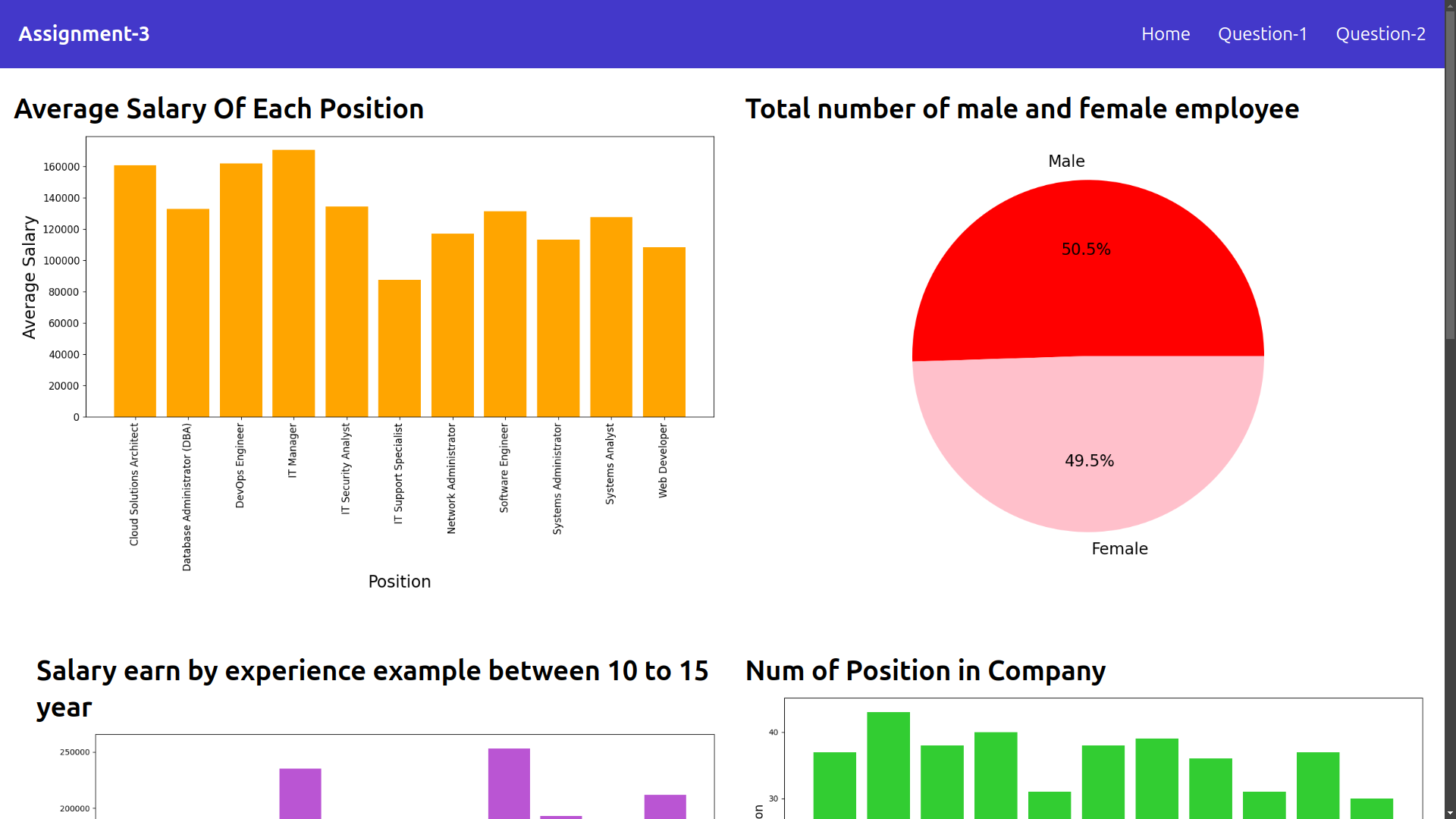
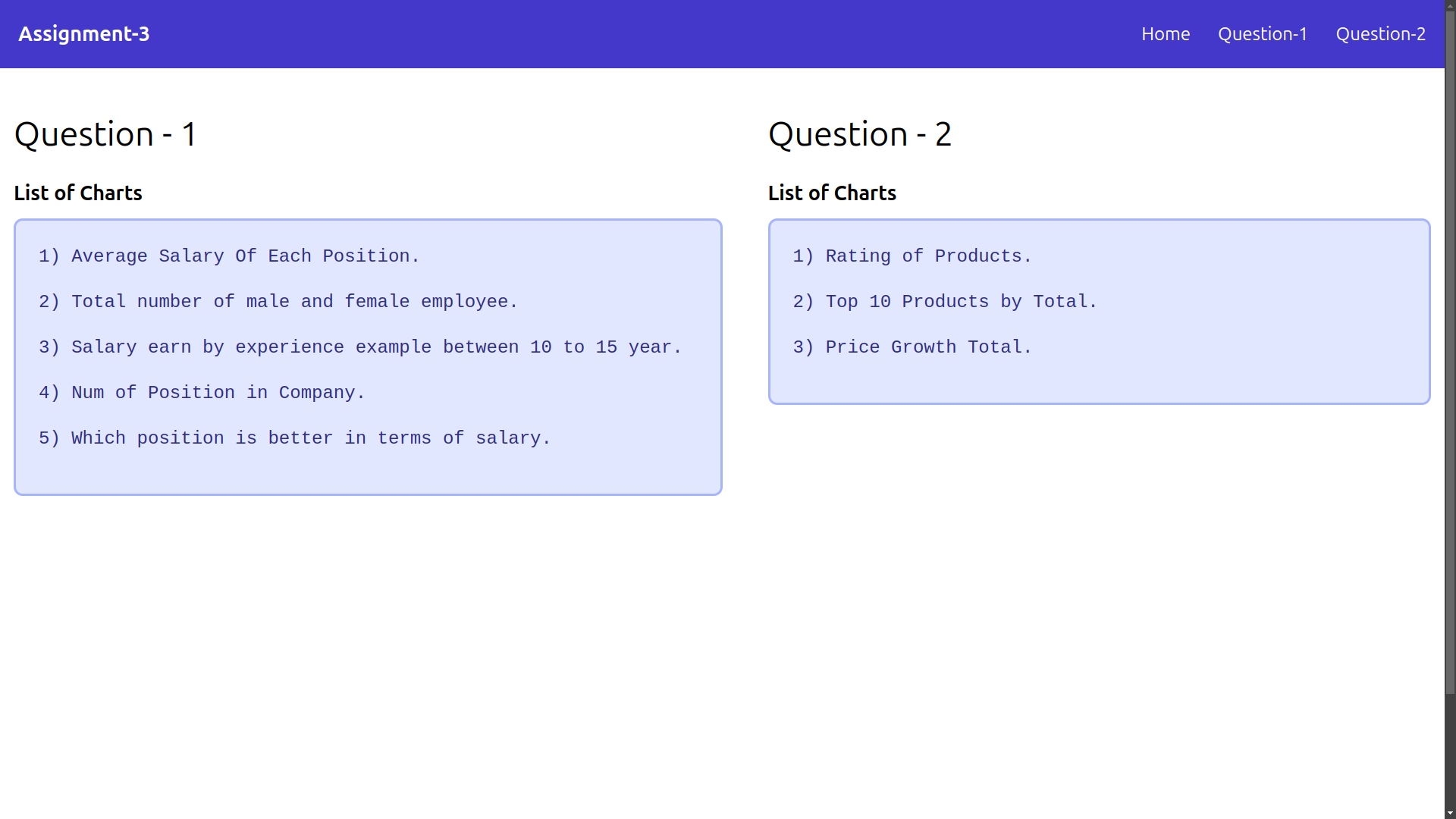
</div>

{% endblock %}

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OUTPUT :

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THANK YOU ☺

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