KAZI NAZRUL UNIVERSITY

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DEPT. : COMPUTER SCIENCE AND ENGINEERING (DATA SCIENCE)

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Contents

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[1]:
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# Q01.  A  python program to create a regular expression to retrieve all words␣
 ↪having 5 characters length

import re

pattern = r"\b\w{5}\b"

word_string = "Ronaldo after goal:␣
 ↪Siuuuuuuuuuuuuuuuuuuuuuuuuuuuuuuuuuuuuuuuuuuuuuuuuuuuuuuuuuuuuuuu"

matches = re.findall (pattern, word_string)

print (matches)
```

```
['after']
```

[3]:
```
# Q02. A python program to display employee id no.s on x axis and their␣
 ↪salaries on y axis in the form of a bar graph for two departments of a␣
 ↪company.

import matplotlib.pyplot as plt

# Data for department 1
dept1_emps = {'E01' : 35000, 'E02' : 20000, 'E03' : 15000, 'E04' : 28000, 'E05'␣
 ↪: 32000}
# Data for department 2
dept2_emps = {'E06' : 45000, 'E07' : 56000, 'E08' : 62000, 'E09' : 75000, 'E10'␣
 ↪: 80000}

# create a bar chart
fig, ax = plt.subplots ()
ax.bar (dept1_emps.keys(), dept1_emps.values(), color = 'b', label = 'Accounts␣
 ↪department')
ax.bar (dept2_emps.keys(), dept2_emps.values(), color = 'm', label =␣
 ↪'Engineering department')

ax.set_xlabel ('Employee ID')
```

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ax.set_ylabel ('Salary')

ax.set_title ('Salary of Employees by Department')

ax.legend ()

plt.show ()
```
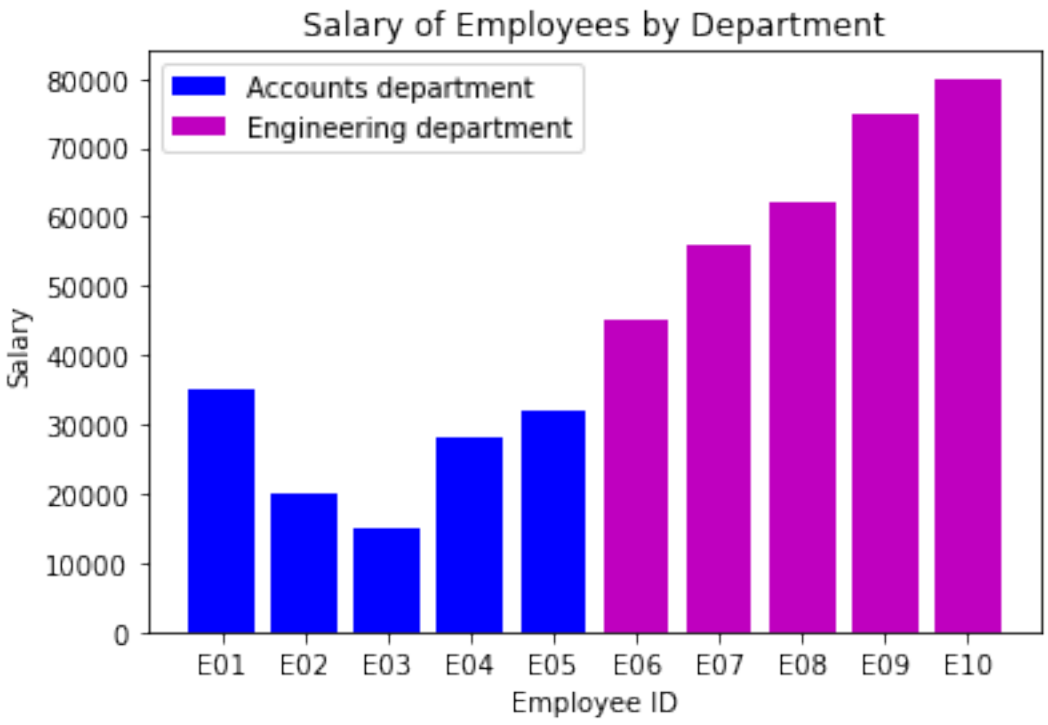
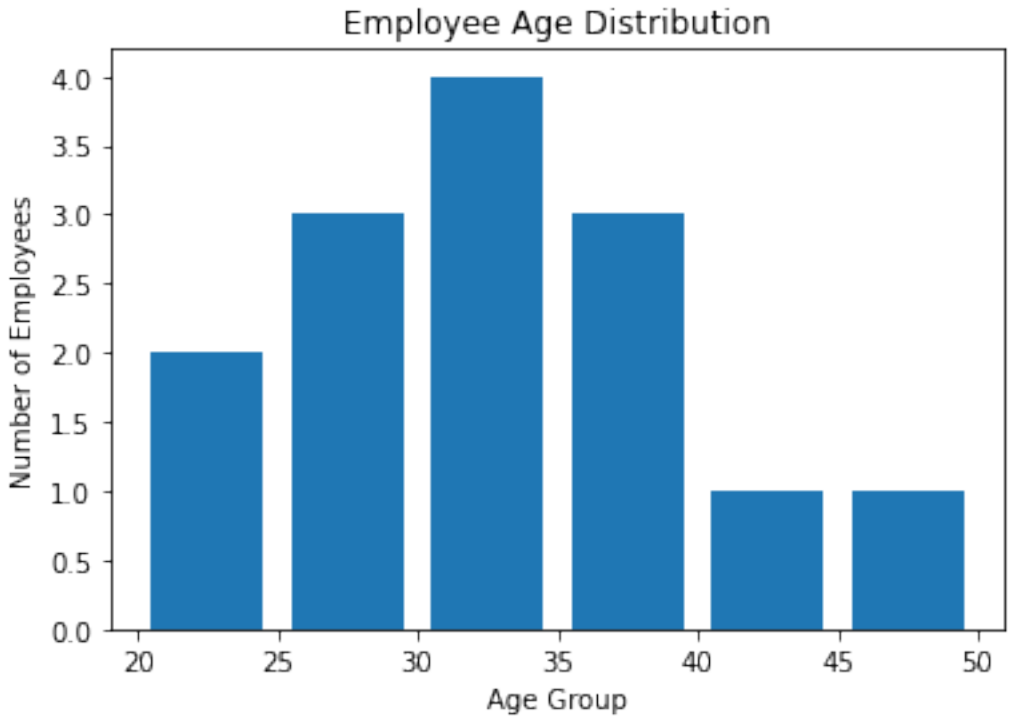
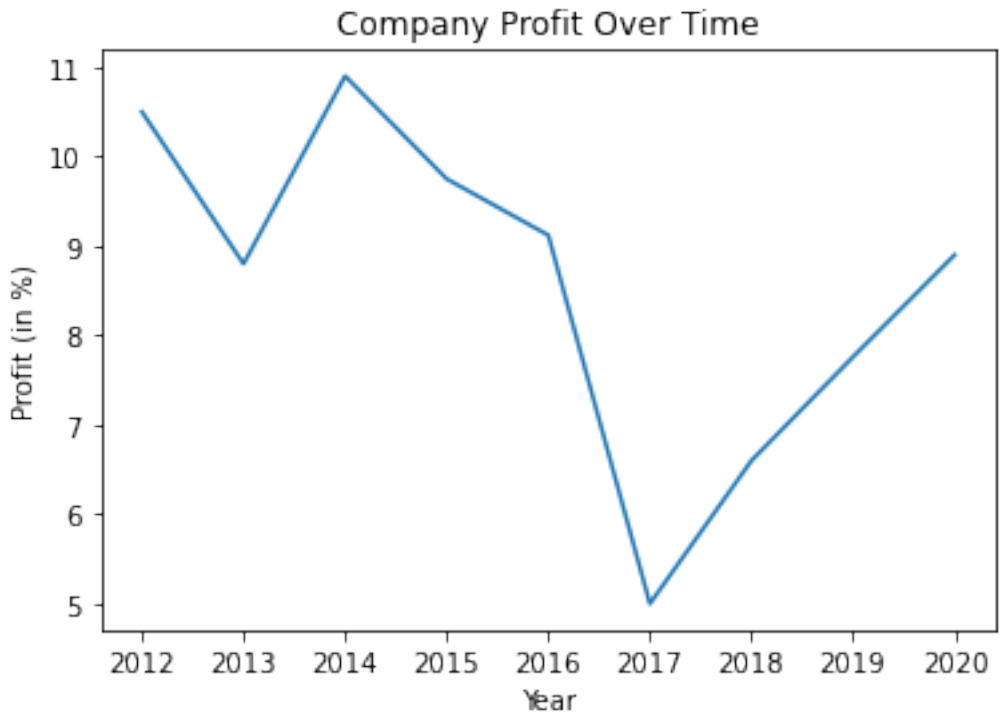



[4]:
```
# Q03. A python program to display a histogram showing the number of employees in specific age groups.

import matplotlib.pyplot as plt

ages = [22,  35,  27, 21, 45, 33, 31, 35, 40, 27, 30, 32, 35, 28]

bins = [20, 25, 30, 35, 40, 45, 50]

plt.hist (ages, bins, histtype = 'bar', rwidth = 0.8)

plt.xlabel ('Age Group')
plt.ylabel ('Number of Employees')
plt.title ('Employee Age Distribution')
```

```
plt.show ()
```



[8]:
```
# Q04. A python program to create a line graph to show the profits of a company␣
↪in various years.

import matplotlib.pyplot as plt

years = [2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020]

profits = [10.5, 8.8, 10.9, 9.75, 9.12, 5, 6.60, 7.76, 8.90]

plt.plot (years, profits)

plt.xlabel ('Year')
plt.ylabel ('Profit (in %)')
plt.title ('Company Profit Over Time')

plt.show ()
```


Company Profit Over Time
Profit (in %)
11
10
9
8
7
6
5
2012
2013
2014
2015
2016
2017
2018
2019
2020
Year

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