In [1]:
```python
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sb
```

In [2]:
```python
''' extract the data from the csv file'''
data = pd.read_csv("/users/baylife/desktop/csv files/california-history.csv")


# list the columns within the data file
print("\n\nThe columns with the data file are: \n\n", data.columns, "\n\n")
print("\n\n The are currently", len(data.columns), "columns with the CSV file to choose from\n\n")
```

The columns with the data file are:

```
Index(['date', 'state', 'death', 'deathConfirmed', 'deathIncrease',
       'deathProbable', 'hospitalized', 'hospitalizedCumulative',
       'hospitalizedCurrently', 'hospitalizedIncrease', 'inIcuCumulative',
       'inIcuCurrently', 'negative', 'negativeIncrease',
       'negativeTestsAntibody', 'negativeTestsPeopleAntibody',
       'negativeTestsViral', 'onVentilatorCumulative', 'onVentilatorCurrently',
       'positive', 'positiveCasesViral', 'positiveIncrease', 'positiveScore',
       'positiveTestsAntibody', 'positiveTestsAntigen',
       'positiveTestsPeopleAntibody', 'positiveTestsPeopleAntigen',
       'positiveTestsViral', 'recovered', 'totalTestEncountersViral',
       'totalTestEncountersViralIncrease', 'totalTestResults',
       'totalTestResultsIncrease', 'totalTestsAntibody', 'totalTestsAntigen',
       'totalTestsPeopleAntibody', 'totalTestsPeopleAntigen',
       'totalTestsPeopleViral', 'totalTestsPeopleViralIncrease',
       'totalTestsViral', 'totalTestsViralIncrease'],
      dtype='object')
```

The are currently 41 columns with the CSV file to choose from

In [3]:
```python
#columns of interest
```

```python
diction = ['date', 'state', 'death',
           'hospitalizedCurrently', 'hospitalizedIncrease',
           'inIcuCurrently', 'negativeIncrease',
           'positive', 'positiveCasesViral', 'positiveIncrease', 'positiveScore',
           'totalTestEncountersViralIncrease', 'totalTestResults',
           'totalTestResultsIncrease','totalTestsPeopleViralIncrease',
           'totalTestsViral', 'totalTestsViralIncrease']

s = []
l = []
a = 10

# decramenting for loop to retieve only the date's and death's of interest
for i in range(13,7,-1):
    s.append(data['date'].iloc[i])
    l.append(data['death'].iloc[i])
```

In [22]:

```python
#plot the data on a scatter plot and show the difference
#plt.hist(l,density = True, alpha = 0.5)
plt.scatter(s , l, marker="." , color = "blue")
#sb.kdeplot(l,shade=True)
plt.title('Scatter plot: covid-19 death toll california from: '+ str(data['date'].iloc[13])+ ' - ' + str(data['date'].iloc[8]))
plt.show()

plt.plot(s,l, marker = '*', color = "#2F3E2B")
plt.title('Bar graph: covid-19 death toll california from: '+ str(data['date'].iloc[13])+ ' - ' + str(data['date'].iloc[8]))
printplt.show()
```

Scatter plot: covid-19 death toll california from: 2021-02-22 - 2021-02-27
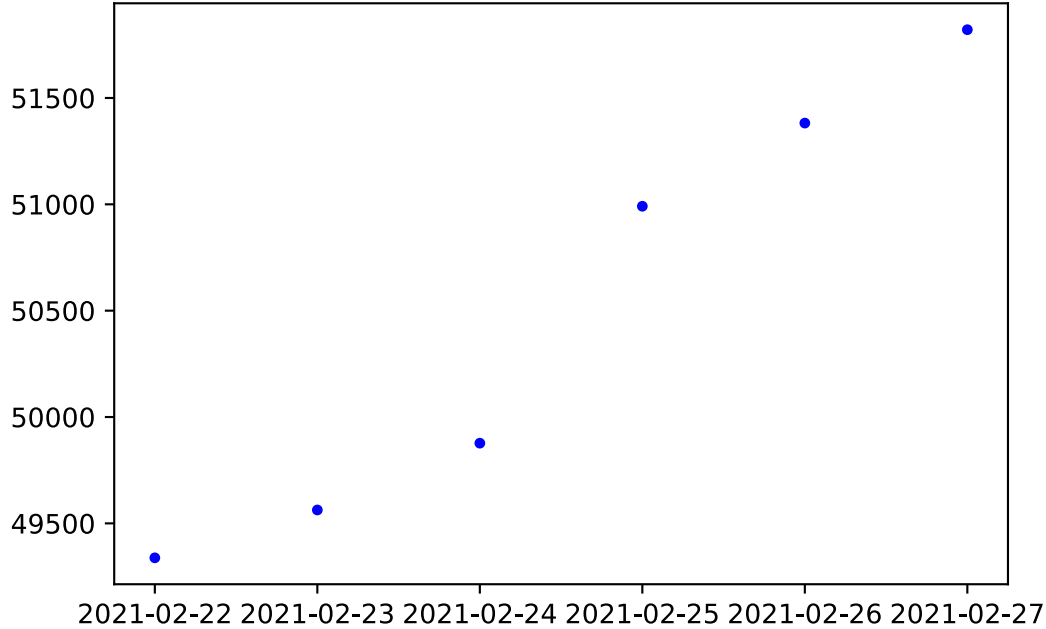
Bar graph: covid-19 death toll california from: 2021-02-22 - 2021-02-27
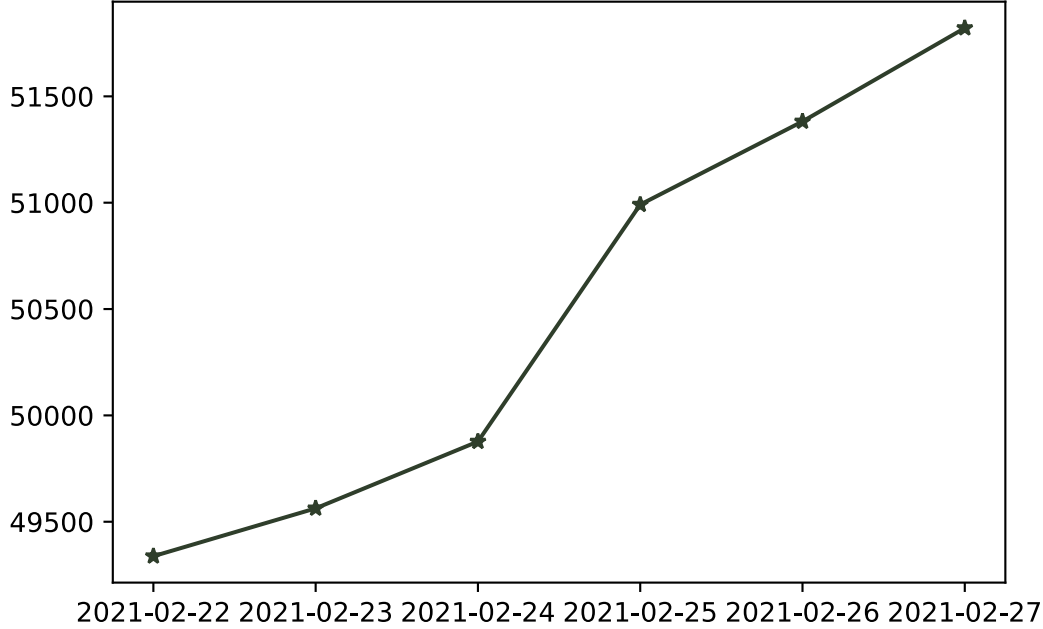
None

In [6]:
```python
for i in range(13,7,-1):
        print(data[diction].iloc[i],"\n\n")

    # print the difference between the largest change of values
    print("Date: ", data['date'].iloc[10],"to", data['date'].iloc[11]," Has a death difference of ",
    data['death'].iloc[10] - data['death'].iloc[11], " this is the largest gap for the ",13 - 7,"indices chosen \n\n")
```

```
date                              2021-02-22
state                                      CA
death                                 49338.0
hospitalizedCurrently                  7165.0
hospitalizedIncrease                        0
inIcuCurrently                         2010.0
negativeIncrease                            0
positive                              3446611
positiveCasesViral                    3446611
positiveIncrease                         4665
positiveScore                               0
totalTestEncountersViralIncrease            0
totalTestResults                     47320802
totalTestResultsIncrease               277454
totalTestsPeopleViralIncrease               0
totalTestsViral                      47320802
totalTestsViralIncrease                277454
Name: 13, dtype: object


date                              2021-02-23
state                                      CA
death                                 49563.0
hospitalizedCurrently                  6908.0
hospitalizedIncrease                        0
inIcuCurrently                         1898.0
negativeIncrease                            0
positive                              3450058
positiveCasesViral                    3450058
positiveIncrease                         3447
positiveScore                               0
totalTestEncountersViralIncrease            0
totalTestResults                     47513367
totalTestResultsIncrease               192565
totalTestsPeopleViralIncrease               0
totalTestsViral                      47513367
totalTestsViralIncrease                192565
Name: 12, dtype: object


date                              2021-02-24
state                                      CA
death                                 49877.0
hospitalizedCurrently                  6764.0
hospitalizedIncrease                        0
```

```
inIcuCurrently                          1842.0
negativeIncrease                             0
positive                               3455361
positiveCasesViral                     3455361
positiveIncrease                          5303
positiveScore                                0
totalTestEncountersViralIncrease             0
totalTestResults                      47652172
totalTestResultsIncrease                138805
totalTestsPeopleViralIncrease                0
totalTestsViral                       47652172
totalTestsViralIncrease                 138805
Name: 11, dtype: object


date                                2021-02-25
state                                       CA
death                                  50991.0
hospitalizedCurrently                   6520.0
hospitalizedIncrease                         0
inIcuCurrently                          1783.0
negativeIncrease                             0
positive                               3460326
positiveCasesViral                     3460326
positiveIncrease                          4965
positiveScore                                0
totalTestEncountersViralIncrease             0
totalTestResults                      47814160
totalTestResultsIncrease                161988
totalTestsPeopleViralIncrease                0
totalTestsViral                       47814160
totalTestsViralIncrease                 161988
Name: 10, dtype: object


date                                2021-02-26
state                                       CA
death                                  51382.0
hospitalizedCurrently                   6152.0
hospitalizedIncrease                         0
inIcuCurrently                          1725.0
negativeIncrease                             0
positive                               3465726
positiveCasesViral                     3465726
positiveIncrease                          5400
```

```
positiveScore                         0
totalTestEncountersViralIncrease      0
totalTestResults               47995576
totalTestResultsIncrease         181416
totalTestsPeopleViralIncrease         0
totalTestsViral                47995576
totalTestsViralIncrease          181416
Name: 9, dtype: object


date                         2021-02-27
state                                CA
death                           51821.0
hospitalizedCurrently            5897.0
hospitalizedIncrease                  0
inIcuCurrently                   1651.0
negativeIncrease                      0
positive                        3470877
positiveCasesViral              3470877
positiveIncrease                   5151
positiveScore                         0
totalTestEncountersViralIncrease      0
totalTestResults               48219490
totalTestResultsIncrease         223914
totalTestsPeopleViralIncrease         0
totalTestsViral                48219490
totalTestsViralIncrease          223914
Name: 8, dtype: object
```

Date: 2021-02-25 to 2021-02-24 Has a death difference of 1114.0 this is the largest gap for the 6 indices chosen

```
In [ ]:
```