In [1]:
```python
import pandas as pd
import numpy as nm
from matplotlib import pyplot as plt
```

In [2]:
```
%%html

<div class="text-center">
<h1> Evaluation of Stack Overflow Survey</h1>
</div>

<h2>Data: </h2>
        <p> Review of over 65,000 respondents to a survey <br>
        </p>

        <h3>From Stack Overflow:<br></h3>
        "This year, we focused on seeking diverse representation while asking for info
        from technologies and behavior to questions that will help us improve the Stac
        for everybody who codes."
        </p>

<h2> Aggregation and review of data below by the following metrics:<br></h2>
    <p>
        &#9642; Reported salary in US dollars<br>
        &#9642; Respondents by Country <br>
        &#9642; Programming languages currently known <br>
        &#9642; Programming languages desired to learn<br><br>

        <p> </br>


    survey source: https://insights.stackoverflow.com/survey/2020
    </p>
```

Evaluation of Stack Overflow Survey

Data:

Review of over 65,000 respondents to a survey

From Stack Overflow:

"This year, we focused on seeking diverse representation while asking for information ranging from technologies and behavior to questions that will help us improve the Stack Overflow community for everybody who codes."

Aggregation and review of data below by the following metrics:

- Reported salary in US dollars
- Respondents by Country
- Programming languages currently known
- Programming languages desired to learn

survey source: https://insights.stackoverflow.com/survey/2020

In [3]:
```python
df = pd.read_csv('2020Data/survey_results_public.csv', index_col='Respondent')
schema_df = pd.read_csv('2020Data/survey_results_schema.csv', index_col='Column')
```

In [4]:
```python
pd.set_option('display.max_columns', 60)
pd.set_option('display.max_rows', 85)
pd.set_option('display.float_format', lambda x: '%.3f' % x)
```

In [5]:
```python
df.rename(columns={'ConvertedComp': 'SalaryUSD'}, inplace=True)
```

In [6]:
```python
#drop inaccurate result
df.drop(14419, inplace=True)
```

In [7]:
```python
#Filter Data
filt = df['SalaryUSD'] < 2000000
df = df.loc[filt]

filt = (df['Age'] > 14)
df = df.loc[filt]

filt = (df['Age'] < 70)
df = df.loc[filt]
```

In [8]:
```python
df['Age'] = df.loc[:, ('Age')].astype(int)
```

In [9]:
```python
df['Age'].isnull().value_counts()
```

Out[9]:
```
False    30332
Name: Age, dtype: int64
```

In [10]:
```python
country_grp = df.groupby(['Country'])
```

In [11]:
```python
#Median Salary USD for all ages
dfMedianAll = (df[['Age', 'SalaryUSD']].groupby('Age').median())
dfMedianAll.head()
```

Out[11]:

Age	SalaryUSD
15	4272.000
16	12216.000
17	12755.500
18	13080.000
19	15000.000

In [12]:
```python
#Create country group for USA
age_sal_All = country_grp.get_group('United States')[['Age', 'SalaryUSD']].groupby('A
```

In [13]:
```python
age_sal_All.rename(columns={'SalaryUSD': 'US_Salary'}, inplace=True)
```

In [14]:
```python
#Add remainign top five country groups and the median for all countries
age_sal_All['UK_Salary'] = country_grp.get_group('United Kingdom')[['Age', 'SalaryUSD
age_sal_All['Germ_Salary'] = country_grp.get_group('Germany')[['Age', 'SalaryUSD']].g
age_sal_All['Canada_Salary'] = country_grp.get_group('Canada')[['Age', 'SalaryUSD']].
age_sal_All['All_Salary'] = dfMedianAll.sort_values(by='Age')
```

In [15]:
```python
age_sal_Ind = country_grp.get_group('India')[['Age', 'SalaryUSD']].groupby('Age').med
age_sal_Ind['All_Salary'] = dfMedianAll.sort_values(by='Age')
age_sal_Ind.drop(index=47, inplace=True)
```

In [16]:
```python
filtdrop = age_sal_All.isnull()
```

In [17]:
```python
age_sal_All.dropna(inplace=True)
```

In [18]:
```python
age_sal_All.reset_index(inplace=True)
```

In [19]:
```python
#Calculate the median for index range near outliers (exluding outliers)
median_Can = age_sal_All['Canada_Salary'][{40,41,42,44,45,46}].median()
```

In [20]:
```python
#set outliers equal to median
age_sal_All.loc[43, ['Canada_Salary']] = median_Can
age_sal_All.loc[47, ['Canada_Salary']] = median_Can
```

In [21]:
```python
# age_sal_All.reset_index(inplace=True)
age_sal_Ind.reset_index(inplace=True)
```

In [22]:
```python
#Create blank lists for each salary by Country
salary_USA_y = []
salary_UK_y = []
salary_Germ_y = []
salary_Can_y = []
sal_All_y = []

#India needs its own age range because of inconsistent data aboge ave 50
salary_Ind_y = []
sal_All_Ind_y = []
```

In [23]:
```python
#Create blank lists for each age by Country
age_Ind_x = []
age_All_Ind_x = []

age_All_x = []
```

In [24]:
```python
#Fill lists with data
for num in age_sal_All['All_Salary']:
    sal_All_y.append(num)

for num in age_sal_All['US_Salary']:
    salary_USA_y.append(num)

for num in age_sal_All['Germ_Salary']:
    salary_Germ_y.append(num)

for num in age_sal_All['UK_Salary']:
    salary_UK_y.append(num)

for num in age_sal_All['Canada_Salary']:
    salary_Can_y.append(num)

for num in age_sal_Ind['SalaryUSD']:
    salary_Ind_y.append(num)

for num in age_sal_Ind['All_Salary']:
    sal_All_Ind_y.append(num)

for age in age_sal_All['Age']:
    age_All_x.append(age)

for age in age_sal_Ind['Age']:
    age_All_Ind_x.append(age)
```

In [25]:
```python
median_age = df['Age'].median()
```

In [26]:
```python
filt_age = df['Age'].astype(int)
```

In [2]:
```
%%html

<h2> General Salary and Age Information Listed Below</h1>

<p>
&#9642; After sorting total respondands are 30,332<br>
&#9642; Mean Salary is \$89,441 median salary of \$54,049
<br>
&#9642; Mean Age is 32, median age is 30
```

General Salary and Age Information Listed Below

- After sorting total respondands are 30,332
- Mean Salary is $89,441 median salary of $54,049
- Mean Age is 32, median age is 30

In [28]:
```python
df[['Country','SalaryUSD','Age']].median()
```

Out[28]:
```
SalaryUSD   54049.000
Age            30.000
dtype: float64
```

In [29]:
```python
df[['Country','SalaryUSD','Age']].describe()
```

Out[29]:

	SalaryUSD	Age
count	30332.000	30332.000
mean	89441.404	32.100
std	156068.844	8.319
min	0.000	15.000
25%	25915.750	26.000
50%	54049.000	30.000
75%	93533.000	36.000
max	1980000.000	69.000

In [3]:
```
%%html

<h2> Per the graphs and data frame below: </h1>

<p>
&#9642; The survey in general is skewed towards younger respondents. This is to be exp
from Stack Overflow and the average age of a software developer is 32 years old.
(The average working age across all professions is 42.3)<br><br>

&#9642; Subsequent graphs note the median salary (USD) for the top five countries resp
US Salary is notably above the world median. India is below except for one outlier. <b

&#9642;  In general, all prooves follows the expected trend that the greater the age,
the salary. This trend does drop off after nearing 60 years old. </p>
```

Per the graphs and data frame below:

- The survey in general is skewed towards younger respondents. This is to be expected since the survey is conducted from Stack Overflow and the average age of a software developer is 32 years old. (The average working age across all professions is 42.3)

- Subsequent graphs note the median salary (USD) for the top five countries responding to the survey. US Salary is notably above the world median. India is below except for one outlier.

- In general, all prooves follows the expected trend that the greater the age, and likely experience, the higher the salary. This trend does drop off after nearing 60 years old.

In [31]:
```python
us_Median = country_grp.get_group('United States')[['Age', 'SalaryUSD']].median()
uk_Median = country_grp.get_group('United Kingdom')[['Age', 'SalaryUSD']].median()
germ_Median = country_grp.get_group('Germany')[['Age', 'SalaryUSD']].median()
can_Median = country_grp.get_group('Canada')[['Age', 'SalaryUSD']].median()
ind_Median = country_grp.get_group('India')[['Age', 'SalaryUSD']].median()
all_Median = df[['Age', 'SalaryUSD']].median()

All_Med_Age = []
All_Med_Sal = []
Country = ['All', 'United States', 'United Kingdom', 'Canada', 'Germany','India' ]

All_Med_Age.append(all_Median[0])
All_Med_Age.append(us_Median[0])
All_Med_Age.append(uk_Median[0])
All_Med_Age.append(can_Median[0])
All_Med_Age.append(germ_Median[0])
All_Med_Age.append(ind_Median[0])

All_Med_Sal.append(all_Median[1])
All_Med_Sal.append(us_Median[1])
All_Med_Sal.append(uk_Median[1])
All_Med_Sal.append(can_Median[1])
All_Med_Sal.append(germ_Median[1])
All_Med_Sal.append(ind_Median[1])
```

In [32]:
```python
median_df = pd.DataFrame(All_Med_Sal, Country, columns=['Median Salary USD'])
# median_df.reset_index(inplace=True)
```

In [33]:
```python
median_df['Median Age'] = All_Med_Age
```

In [34]:
```
%%html

<h1> Median Salary and Age by Country</h1>
```

Median Salary and Age by Country

In [35]:
```python
median_df
```

Out[35]:

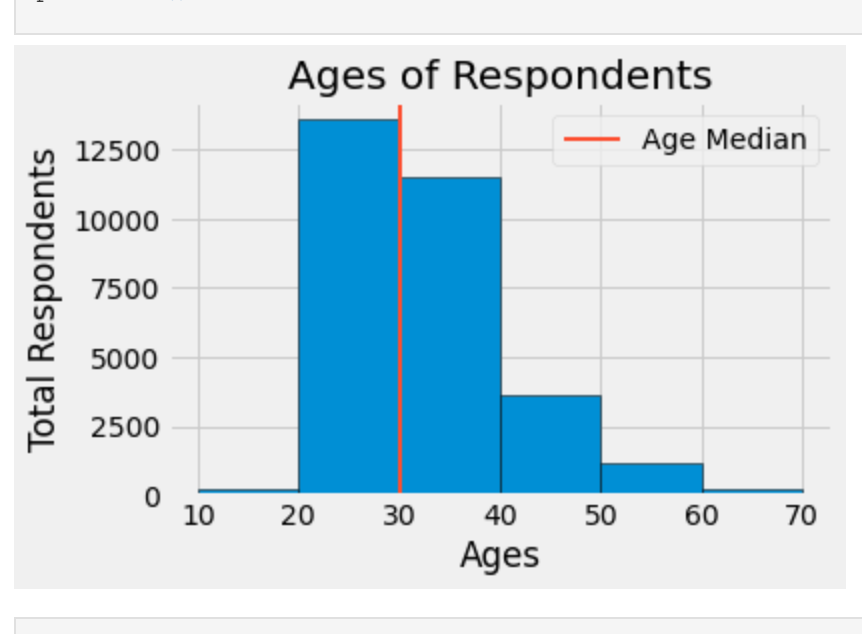
	Median Salary USD	Median Age
All	54049.000	30.000
United States	111000.000	32.000
United Kingdom	67215.000	31.000
Canada	68068.000	31.000
Germany	62697.000	31.000
India	10471.000	26.000

In [36]:
```python
plt.style.use('fivethirtyeight')
bins = [10, 20, 30, 40, 50, 60, 70]

plt.hist(filt_age, bins=bins, edgecolor='black', log=False)

color = '#fc4f30'
plt.axvline(median_age, color=color, label='Age Median', linewidth=2)

plt.title('Ages of Respondents')
plt.xlabel('Ages')
plt.ylabel('Total Respondents')
plt.tight_layout()
plt.legend()
plt.show()
```



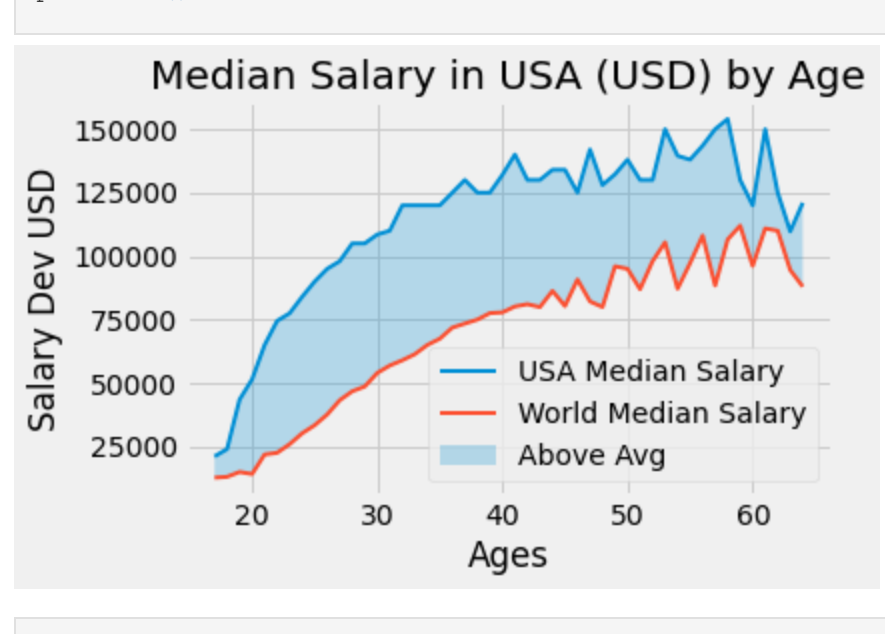
In [37]:
```python
plt.xlabel('Ages')
plt.ylabel('Salary Dev USD')
plt.title('Median Salary in USA (USD) by Age')
plt.style.use('bmh')

plt.plot(age_All_x, salary_USA_y, label='USA Median Salary')
plt.plot(age_All_x, sal_All_y, label='World Median Salary')

plt.fill_between(age_All_x, salary_USA_y, sal_All_y,
                 where=(nm.asarray(salary_USA_y) > nm.asarray(sal_All_y)),
                 interpolate=True, alpha=0.25, label='Above Avg')

plt.fill_between(age_All_x, salary_USA_y, sal_All_y,
                 where=(nm.asarray(salary_USA_y) < nm.asarray(sal_All_y)),
                 interpolate=True, color='red', alpha=0.25)


plt.tight_layout()
plt.legend()
plt.show()
```



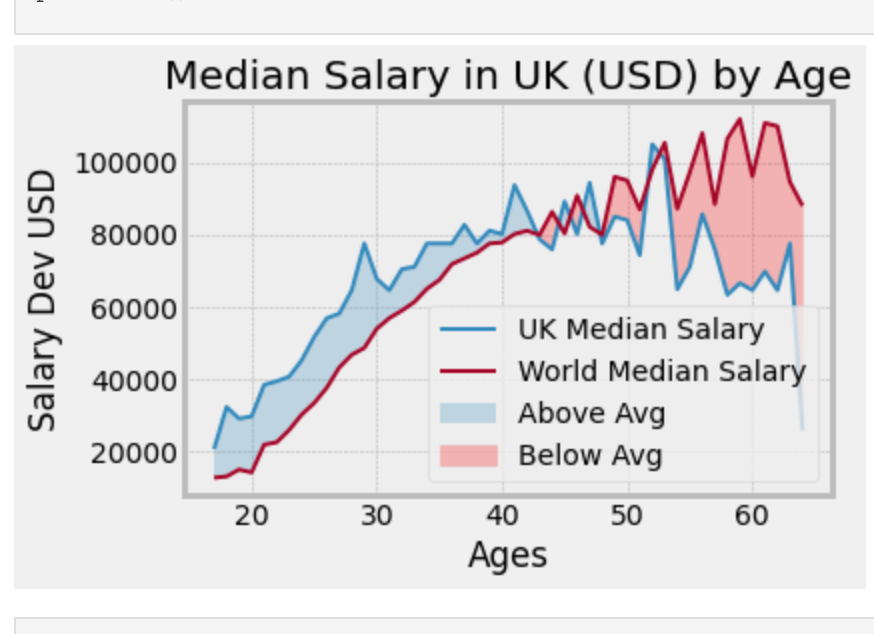
In [38]:
```python
plt.xlabel('Ages')
plt.ylabel('Salary Dev USD')
plt.title('Median Salary in UK (USD) by Age')
plt.style.use('bmh')

plt.plot(age_All_x, salary_UK_y, label='UK Median Salary')
plt.plot(age_All_x, sal_All_y, label='World Median Salary')

plt.fill_between(age_All_x, salary_UK_y, sal_All_y,
                 where=(nm.asarray(salary_UK_y) > nm.asarray(sal_All_y)),
                 interpolate=True, alpha=0.25, label='Above Avg')

plt.fill_between(age_All_x, salary_UK_y, sal_All_y,
                 where=(nm.asarray(salary_UK_y) < nm.asarray(sal_All_y)),
                 interpolate=True, color='red', alpha=0.25, label='Below Avg')


plt.tight_layout()
plt.legend()
plt.show()
```



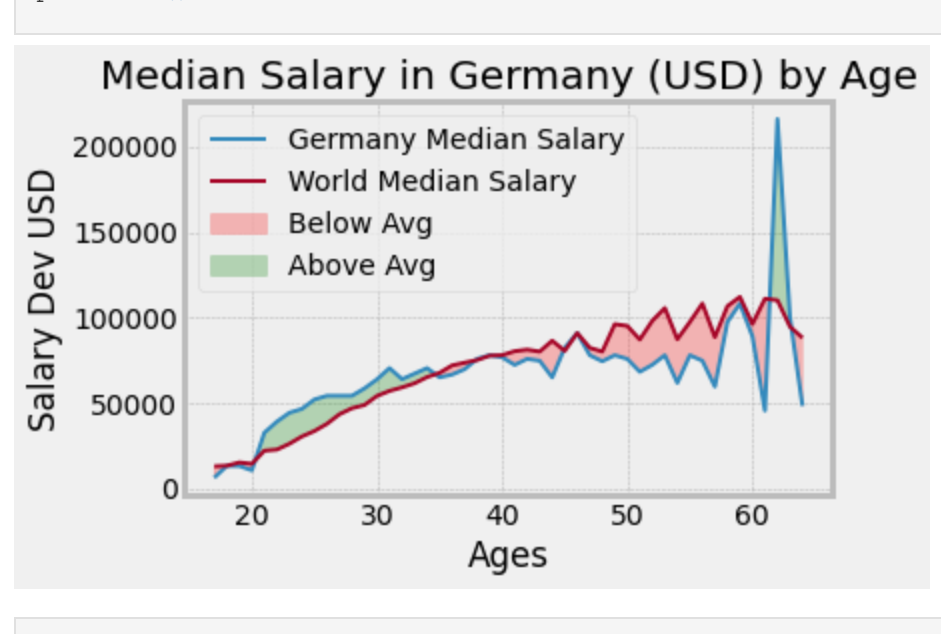
In [39]:
```python
plt.xlabel('Ages')
plt.ylabel('Salary Dev USD')
plt.title('Median Salary in Germany (USD) by Age')
plt.style.use('bmh')

plt.plot(age_All_x, salary_Germ_y, label='Germany Median Salary')
plt.plot(age_All_x, sal_All_y, label='World Median Salary')

plt.fill_between(age_All_x, salary_Germ_y, sal_All_y,
                 where=(nm.asarray(salary_Germ_y) < nm.asarray(sal_All_y)),
                 interpolate=True, alpha=0.25, color='red', label='Below Avg')

plt.fill_between(age_All_x, salary_Germ_y, sal_All_y,
                 where=(nm.asarray(salary_Germ_y) >= nm.asarray(sal_All_y)),
                 interpolate=True, color='green', alpha=0.25, label='Above Avg')


plt.tight_layout()
plt.legend()
plt.show()
```



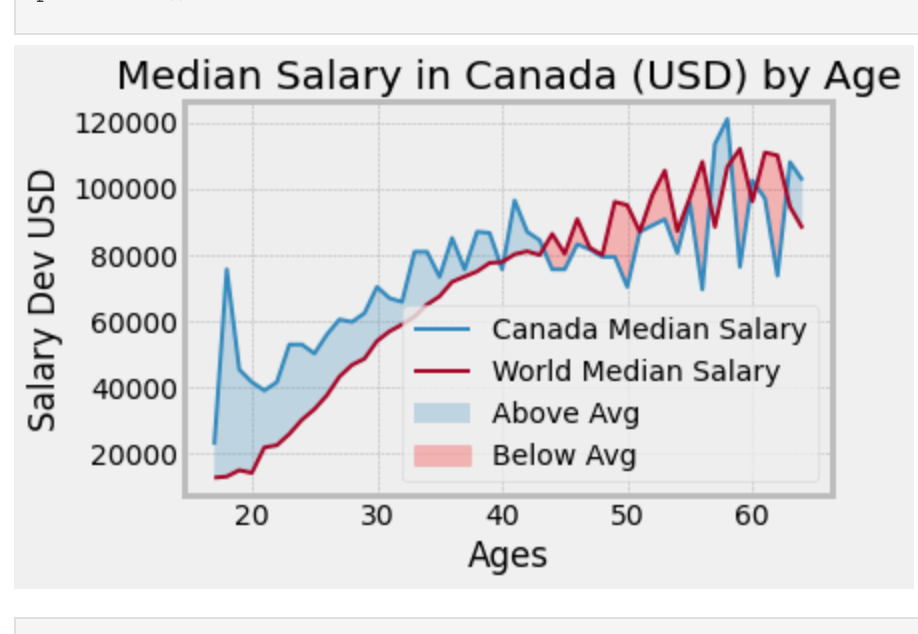
In [40]:
```python
plt.xlabel('Ages')
plt.ylabel('Salary Dev USD')
plt.title('Median Salary in Canada (USD) by Age')
plt.style.use('bmh')

plt.plot(age_All_x, salary_Can_y, label='Canada Median Salary')
plt.plot(age_All_x, sal_All_y, label='World Median Salary')

plt.fill_between(age_All_x, salary_Can_y, sal_All_y,
                 where=(nm.asarray(salary_Can_y) > nm.asarray(sal_All_y)),
                 interpolate=True, alpha=0.25, label='Above Avg')

plt.fill_between(age_All_x, salary_Can_y, sal_All_y,
                 where=(nm.asarray(salary_Can_y) < nm.asarray(sal_All_y)),
                 interpolate=True, color='red', alpha=0.25, label='Below Avg')


plt.tight_layout()
plt.legend()
plt.show()
```



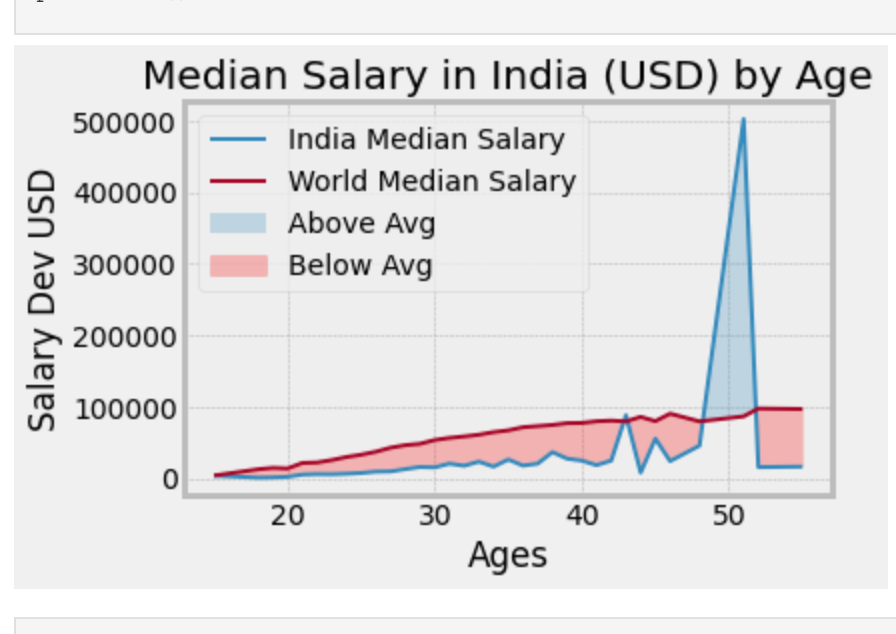
In [41]:
```python
plt.xlabel('Ages')
plt.ylabel('Salary Dev USD')
plt.title('Median Salary in India (USD) by Age')
plt.style.use('bmh')

plt.plot(age_All_Ind_x, salary_Ind_y, label='India Median Salary')
plt.plot(age_All_Ind_x, sal_All_Ind_y, label='World Median Salary')

plt.fill_between(age_All_Ind_x, salary_Ind_y, sal_All_Ind_y,
                 where=(nm.asarray(salary_Ind_y) > nm.asarray(sal_All_Ind_y)),
                 interpolate=True, alpha=0.25, label='Above Avg')

plt.fill_between(age_All_Ind_x, salary_Ind_y, sal_All_Ind_y,
                 where=(nm.asarray(salary_Ind_y) < nm.asarray(sal_All_Ind_y)),
                 interpolate=True, color='red', alpha=0.25, label='Below Avg')


plt.tight_layout()
plt.legend()
plt.show()
```



In [42]:
```python
dftotal_all = df[['Age', 'LanguageWorkedWith']]
dftotal_all
```

Out[42]:

Respondent	Age	LanguageWorkedWith
8	36	Python;SQL
10	22	HTML/CSS;Java;JavaScript;Python;SQL
11	23	C#;JavaScript;Swift
12	49	HTML/CSS;JavaScript
13	53	C;JavaScript;Python
...	...	...
64460	25	HTML/CSS;Java;JavaScript;PHP;SQL;TypeScript
64810	32	Bash/Shell/PowerShell;C#;HTML/CSS;JavaScript;P...
64938	33	Assembly;C;C++;HTML/CSS;Java;JavaScript;PHP;Py...
65414	22	HTML/CSS;JavaScript;PHP;SQL
65629	41	NaN

30332 rows × 2 columns

In [43]:
```python
dftotal_all['LanguageWorkedWith'].str.contains('Python').value_counts()
```

Out[43]:
```
False    17635
True     12541
Name: LanguageWorkedWith, dtype: int64
```

In [44]:
```python
filt = (dftotal_all['LanguageWorkedWith'].str.contains('Python') == True)
```

In [45]:
```python
all_know_python = dftotal_all[filt]
all_know_python
```

Out[45]:

Respondent	Age	LanguageWorkedWith
8	36	Python;SQL
10	22	HTML/CSS;Java;JavaScript;Python;SQL
13	53	C;JavaScript;Python
17	25	C#;HTML/CSS;JavaScript;Python;SQL;VBA
32	31	C;C++;Java;Python;SQL;VBA
...	...	...
62938	31	Bash/Shell/PowerShell;Dart;Go;HTML/CSS;Java;Ja...
62957	24	C#;C++;HTML/CSS;Java;Python;R
63288	31	HTML/CSS;JavaScript;Python;SQL;TypeScript
64810	32	Bash/Shell/PowerShell;C#;HTML/CSS;JavaScript;P...
64938	33	Assembly;C;C++;HTML/CSS;Java;JavaScript;PHP;Py...

12541 rows × 2 columns

In [46]:
```python
all_know_python = all_know_python['Age'].value_counts()
```

In [47]:
```python
all_know_python = all_know_python.reset_index()
```

In [48]:
```python
all_know_python.rename(columns={'Age': 'Qty'}, inplace=True)
```

In [49]:
```python
all_know_python.rename(columns={'index': 'Age'}, inplace=True)
all_know_python.sort_values(by='Age', inplace=True)
```

In [50]:
```python
total_age_responded = df['Age'].value_counts()
```

In [51]:
```python
total_age_responded = df['Age'].value_counts()
```

In [52]:
```python
total_age_responded = total_age_responded.reset_index()
```

In [53]:
```python
total_age_responded.rename(columns={'Age': 'Qty'}, inplace=True)
```

In [54]:
```python
total_age_responded.rename(columns={'index': 'Age'}, inplace=True)
total_age_responded.sort_values(by='Age', inplace=True)
```

In [55]:
```python
all_know_python.reset_index(inplace=True)
all_know_python.drop(columns='index', inplace=True)
```

In [56]:
```python
total_age_responded.reset_index(inplace=True)
```

In [57]:
```python
total_age_responded['QtyPython'] = all_know_python['Qty']
```

In [58]:
```python
total_age_responded['Percent_Py'] = (total_age_responded['QtyPython']/total_age_respon
```

In [59]:
```python
df[['Country', 'Age', 'LanguageWorkedWith', 'LanguageDesireNextYear']].head(15)
```

Out[59]:

Respondent	Country	Age	LanguageWorkedWith	LanguageDesi
8	United States	36	Python;SQL	
10	United Kingdom	22	HTML/CSS;Java;JavaScript;Python;SQL	HTML/CSS;Java;JavaScript;P
11	United Kingdom	23	C#;JavaScript;Swift	Go;JavaScript;Swi
12	Spain	49	HTML/CSS;JavaScript	HTML/CS
13	Netherlands	53	C;JavaScript;Python	
14	United States	27	HTML/CSS;JavaScript;SQL;TypeScript	HTML/CSS;JavaScript;SQ
16	United Kingdom	45	Bash/Shell/PowerShell;HTML/CSS;Java;JavaScript...	
17	United States	25	C#;HTML/CSS;JavaScript;Python;SQL;VBA	C#;Go;Haskell;HTML/CSS;JavaScript;Py
18	United States	32	Bash/Shell/PowerShell;HTML/CSS;Perl	HT
19	United States	24	Bash/Shell/PowerShell;C#;HTML/CSS;JavaScript;S...	C#;Go;Pytho
24	Germany	45	Bash/Shell/PowerShell;Java;Kotlin;PHP;SQL	Bash/Shell/PowerShell;Go;Java;Julia
32	Canada	31	C;C++;Java;Python;SQL;VBA	
33	Belgium	39	HTML/CSS;JavaScript;TypeScript	HTML/CSS;JavaScrip
36	United Kingdom	34	C#;Go;HTML/CSS;Java;JavaScript;Python;R;SQL	C#;Go;HTML/CSS;JavaScript
38	Italy	35	HTML/CSS;JavaScript;Python;Ruby;Rust	JavaScript;Rus

In [60]:
```python
age_sal_All.set_index('Age', inplace=True)
```

In [61]:
```python
total_age_responded.set_index('Age', inplace=True)
```

In [62]:
```python
total_age_responded['SalaryAllUSD'] = age_sal_All['All_Salary']
```

In [63]:
```python
total_age_responded.dropna(inplace=True)
```

In [64]:
```python
total_age_responded.reset_index(inplace=True)
```

In [65]:
```python
#create list of all ages related to Python:
Python_age_resp = []
for age in total_age_responded['Age']:
    Python_age_resp.append(age)
```

In [66]:
```python
#Create list of percent of respondents that know python
Python_percent = []
for qtyPy in total_age_responded['Percent_Py']:
        Python_percent.append(qtyPy)
```

In [4]:
```
%%html

<h2>
The graph below notes median salary (USD) for all countries and ages</h1>

<p>
&#9642;The color notes if respondents currently know Python.<br>
(The more yellow the color, the higher percentage of respondents already know Python)
```

The graph below notes median salary (USD) for all countries and ages

- The color notes if respondents currently know Python.
(The more yellow the color, the higher percentage of respondents already know Python)

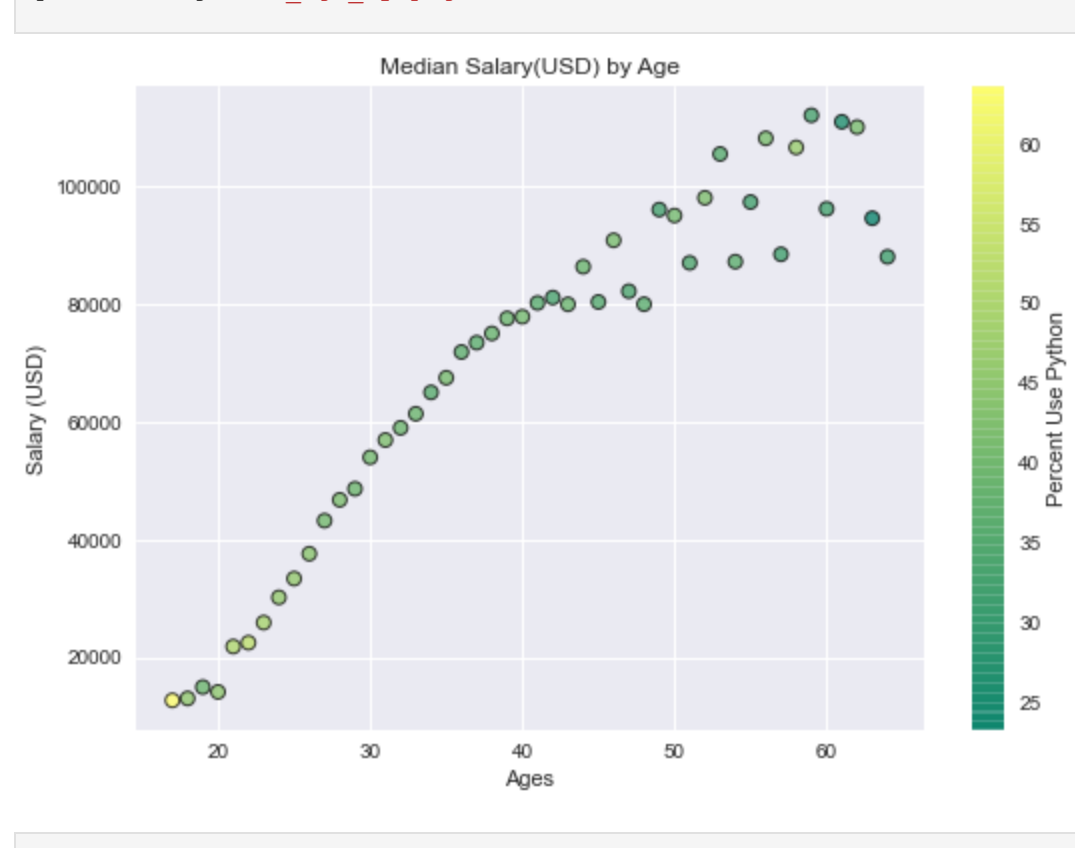
In [68]:
```python
plt.style.use('seaborn')

plt.scatter(age_All_x, sal_All_y, c = Python_percent, cmap='summer',
            edgecolor='black', linewidth=1, alpha=0.75)

cbar = plt.colorbar()
cbar.set_label("Percent Use Python")

plt.title('Median Salary(USD) by Age')
plt.xlabel('Ages')
plt.ylabel('Salary (USD)')

plt.tight_layout()
plt.savefig('Sal_Age_Py.png')
```



In [69]:
```python
df['LanguageWorkedWith'].str.contains('Python').value_counts()
```

Out[69]:
```
False    17635
True     12541
Name: LanguageWorkedWith, dtype: int64
```

In [70]:
```python
df['LanguageDesireNextYear'].describe()
```

Out[70]:
```
count      28838
unique      9797
top       Python
freq         461
Name: LanguageDesireNextYear, dtype: object
```

In [71]:
```python
filt = (df['LanguageDesireNextYear'].str.contains('Script') == True)
LearnJavaScript = df.loc[filt][['LanguageDesireNextYear']].count()
LearnJavaScript = LearnJavaScript[0]

filt = (df['LanguageDesireNextYear'].str.contains('HTML') == True)
learnHTML = df.loc[filt][['LanguageDesireNextYear']].count()
learnHTML = learnHTML[0]

filt = (df['LanguageDesireNextYear'].str.contains('SQL') == True)
learnSQL = df.loc[filt][['LanguageDesireNextYear']].count()
learnSQL = learnSQL[0]

filt = (df['LanguageDesireNextYear'].str.contains('Python') == True)
learnPy = df.loc[filt][['LanguageDesireNextYear']].count()
learnPy = learnPy[0]

filt = (df['LanguageDesireNextYear'].str.contains("C\+\+") == True)
learnCpp = df.loc[filt][['LanguageDesireNextYear']].count()
learnCpp = learnCpp[0]

filt = (df['LanguageDesireNextYear'].str.contains("Java[^Script]") == True)
learnJava = df.loc[filt][['LanguageDesireNextYear']].count()
learnJava = learnJava[0]
```

In [?]:

```
df["LanguageWorkedWith"].describe()
```

Out[?]:

```
count                                 30176
unique                                 8618
top          HTML/CSS;JavaScript;PHP;SQL
freq                                    567
Name: LanguageWorkedWith, dtype: object
```

In [?]:

```
filt = (df["LanguageWorkedWith"].str.contains("Script") == True)
totalJavaScript = df.loc[filt][["LanguageWorkedWith"]].count()
totalJavaScript = totalJavaScript[0]

filt = (df["LanguageWorkedWith"].str.contains("HTML") == True)
totalHTML = df.loc[filt][["LanguageWorkedWith"]].count()
totalHTML = totalHTML[0]

filt = (df["LanguageWorkedWith"].str.contains("SQL") == True)
totalSQL = df.loc[filt][["LanguageWorkedWith"]].count()
totalSQL = totalSQL[0]

filt = (df['LanguageWorkedWith'].str.contains('Python') == True)
totalPy = df.loc[filt][['LanguageWorkedWith']].count()
totalPy = totalPy[0]

filt = (df['LanguageWorkedWith'].str.contains("C\+\+") == True)
totalCpp = df.loc[filt][['LanguageWorkedWith']].count()
totalCpp = totalCpp[0]

filt = (df['LanguageWorkedWith'].str.contains("Java[^Script]") == True)
totalJava = df.loc[filt][['LanguageWorkedWith']].count()
totalJava = totalJava[0]
```

In [5]:

```
%%html

<h2>
The pie charts below note the popularity of the top 5 programming languages</h1>

<p>
&#9642; The first chart shows languages currently known by respondents. <br>
&#9642; The second chart shows languages currently respondents want to lear in 2021. <

&#9642; These charts highlight the desire for more programmers to learn and use Pythor
(Currently 14.4% of respondents know Python, but 21.3% of respondents want to learn Py

&#9642; The standard languages of JavaScript, HTML, and SQL remain popular. Judging fr
Python looks to be the upcoming language most respondents want to learn in 2021. </p>
```

The pie charts below note the popularity of the top 5 programming languages

- The first chart shows languages currently known by respondents.
- The second chart shows languages currently respondents want to lear in 2021.

- These charts highlight the desire for more programmers to learn and use Python.
(Currently 14.4% of respondents know Python, but 21.3% of respondents want to learn Python in 2021)

- The standard languages of JavaScript, HTML, and SQL remain popular. Judging from this information, Python looks to be the upcoming language most respondents want to learn in 2021.

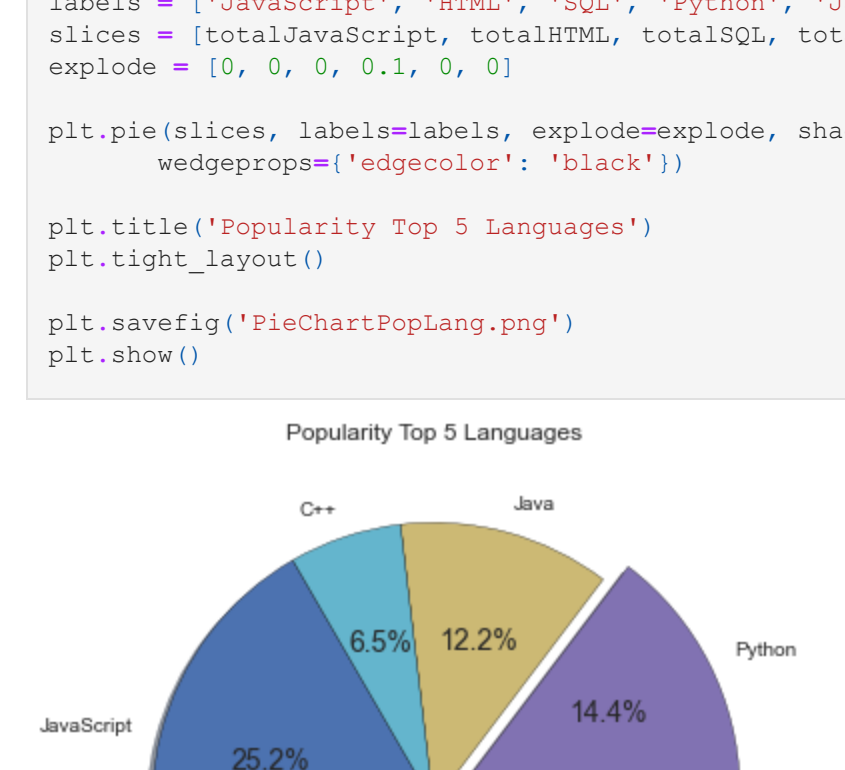
In [75]:

```
labels = ['JavaScript', 'HTML', 'SQL', 'Python', 'Java', 'C++']
slices = [totalJavaScript, totalHTML, totalSQL, totalPy, totalJava, totalCpp]
explode = [0, 0, 0, 0.1, 0, 0]

plt.pie(slices, labels=labels, explode=explode, shadow=True, startangle=120, autopct=
        wedgeprops={'edgecolor': 'black'})

plt.title('Popularity Top 5 Languages')
plt.tight_layout()

plt.savefig('PieChartPopLang.png')
plt.show()
```

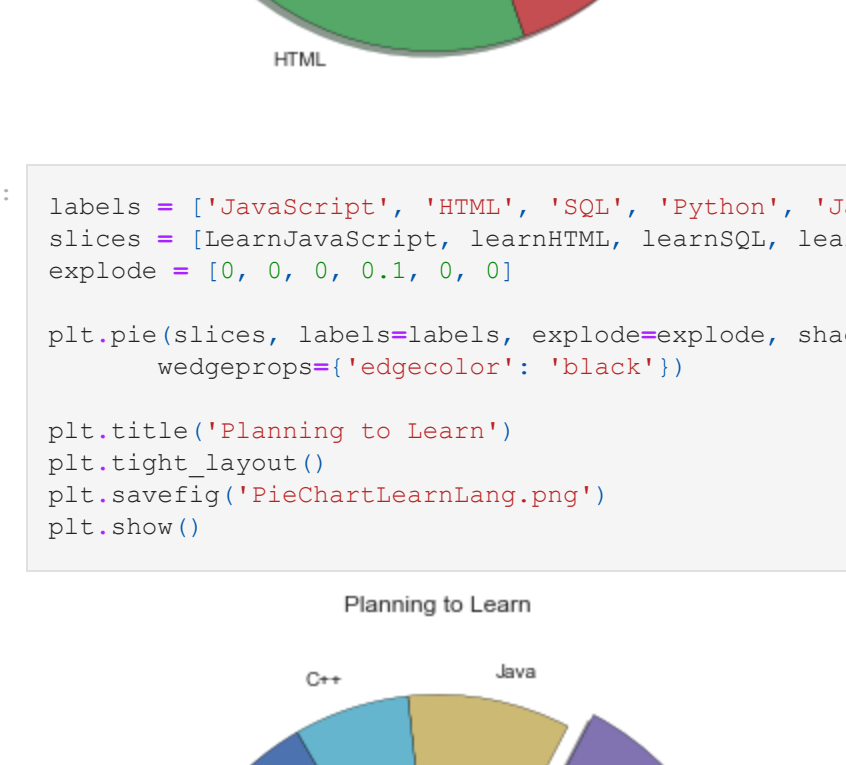


In [76]:

```
labels = ['JavaScript', 'HTML', 'SQL', 'Python', 'Java', 'C++']
slices = [LearnJavaScript, learnHTML, learnSQL, learnPy, learnJava, learnCpp]
explode = [0, 0, 0, 0.1, 0, 0]

plt.pie(slices, labels=labels, explode=explode, shadow=True, startangle=120, autopct=
        wedgeprops={'edgecolor': 'black'})

plt.title('Planning to Learn')
plt.tight_layout()
plt.savefig('PieChartLearnLang.png')
plt.show()
```



In [7]:

```
%%html

<h2>
Conclusions Drawn: </h1>

<p>
&#9642; The United States has a noticeably higher mean and median salary. The UK, Cana
all have similar mean and median salaries. India claimed the fifth highest median sala
salary drops off considerably. (India's median salary is 9% of the US median salary an
world median salary<br><br>

&#9642; The median age of the respondent is 30 years old. This aligns with expectation

&#9642; A higher percentage of younger respondents 20-35 years old tend to already kno
percentage of respondents that already know Python drop off<br><br>

&#9642; Based on responses to this survey, Python is a popular upcoming programing lan
given the ease and versatility of the Python programming language. The increase in des
compared to the relatively low percentage of respondents that currently know Python he

End Report 3/18/21 completed by Ryan Olsen <p>
```

Conclusions Drawn:

- The United States has a noticeably higher mean and median salary. The UK, Canada and Germany all have similar mean and median salaries. India claimed the fifth highest median salary, though the median salary drops off considerably. (India's median salary is 9% of the US median salary and just under 20% of the world median salary

- The median age of the respondent is 30 years old. This aligns with expectations

- A higher percentage of younger respondents 20-35 years old tend to already know Python. Over the age of 35, the percentage of respondents that already know Python drop off

- Based on responses to this survey, Python is a popular upcoming programing language. This is not surprising given the ease and versatility of the Python programming language. The increase in desire to learn this language in 2021, compared to the relatively low percentage of respondents that currently know Python help support this conclusion.

End Report 3/18/21 completed by Ryan Olsen