In [1]:

```
# Get dataset from kaggle: https://www.kaggle.com/ananaymital/us-used-cars-dataset?select=used_cars_data.csv
# Run data cleanning bash script
! ./bash_script.sh
```

In [2]:

```
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
!pip install -q wordcloud
from wordcloud import WordCloud
sns.set_style("whitegrid")
%matplotlib inline
```

In [3]:

```
df = pd.read_csv('dataset.csv')
df.dropna(inplace=True) # Drop rows containing N/A value
df = df[df.body_type.isin(["SUV / Crossover", "Sedan"])] # Only analyze SUV and Sedan
df['engine_type'] = df['engine_type'].str.extract('(\d+)', expand=False) #Only keep number of cylinder in engine
df['make_name'] = df['make_name'].str.replace(" ","") #Remove space for wordcloud
df.reset_index(drop=True ,inplace=True)
df.head()
```

Out[3]:

	body_type	daysonmarket	engine_type	fleet	frame_damaged	franchise_dealer	fuel_type	ha
0	Sedan	1233	4	False	False	True	Gasoline	
1	SUV / Crossover	242	4	False	False	True	Gasoline	
2	SUV / Crossover	510	4	False	False	True	Gasoline	
3	Sedan	1233	6	False	False	True	Gasoline	
4	SUV / Crossover	324	4	False	False	True	Gasoline	

In [4]:

```
# Fix dtype of columns
numeric_columns = ['daysonmarket', 'price', 'year', 'engine_type']
bool_columns = ['fleet', 'frame_damaged', 'franchise_dealer', 'has_accidents', 'isCab', 'is_new']
df[numeric_columns] = df[numeric_columns].astype(int)
df[bool_columns] = df[bool_columns].astype(bool)
```

In [5]:
```
df.dtypes
```

Out[5]:
```
body_type            object
daysonmarket          int32
engine_type           int32
fleet                  bool
frame_damaged          bool
franchise_dealer       bool
fuel_type            object
has_accidents          bool
horsepower          float64
isCab                  bool
is_new                 bool
make_name            object
price                 int32
transmission         object
wheel_system         object
year                  int32
dtype: object
```

In [6]:
```
df.corr() # Correlation table between numeric columns
```

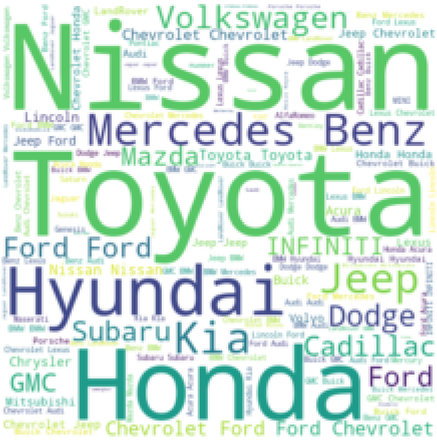
Out[6]:

	daysonmarket	engine_type	fleet	frame_damaged	franchise_dealer	has_a
daysonmarket	1.000000	0.020708	0.034059	0.041474	-0.109651	
engine_type	0.020708	1.000000	0.000737	-0.013253	-0.075518	
fleet	0.034059	0.000737	1.000000	0.038128	-0.110658	-
frame_damaged	0.041474	-0.013253	0.038128	1.000000	-0.108073	
franchise_dealer	-0.109651	-0.075518	-0.110658	-0.108073	1.000000	-
has_accidents	0.037924	0.027273	-0.003172	0.106648	-0.157246	
horsepower	0.016392	0.812398	-0.044582	-0.027742	0.024881	-
isCab	0.009830	-0.000269	0.917755	-0.005061	-0.059139	-
is_new	0.097140	-0.068311	-0.082159	-0.015640	0.111825	-
price	0.000805	0.321735	-0.053624	-0.055807	0.243744	-
year	-0.068501	-0.234809	0.154018	-0.040420	0.344749	-

Manufacturers

In [7]:

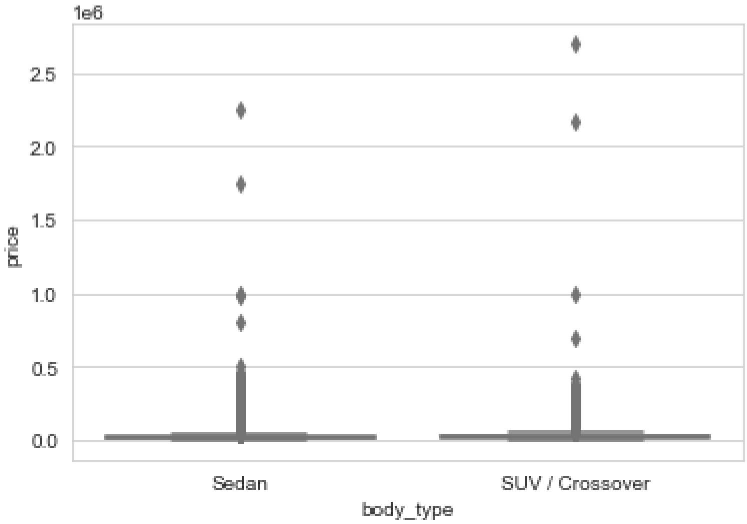
```
# Manufacturer word cloud
text = ' '.join(df['make_name'])
wc = WordCloud(background_color="white", max_font_size=256, random_state=42, w
idth=500, height=500)
wc.generate(text)
plt.imshow(wc, interpolation="bilinear")
plt.axis('off')
plt.savefig('Manufacturers.png')
```



Car attributes

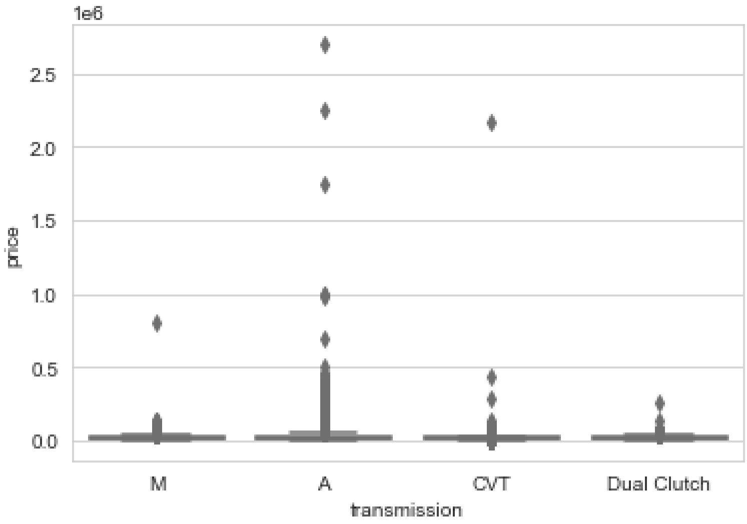
In [8]:

```
sns.boxplot('body_type', 'price', data=df, palette="pastel")
plt.savefig('attributes/body_type.png')
```



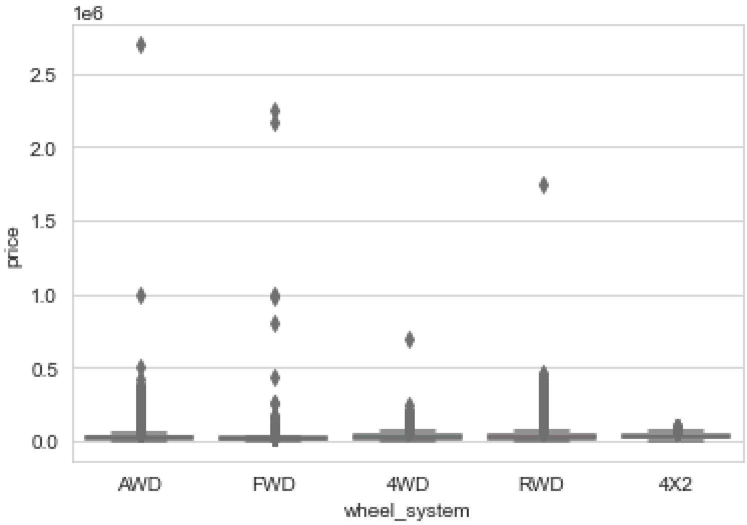
In [9]:

```
sns.boxplot('transmission', 'price', data=df, palette="pastel")
plt.savefig('attributes/transmission.png')
```



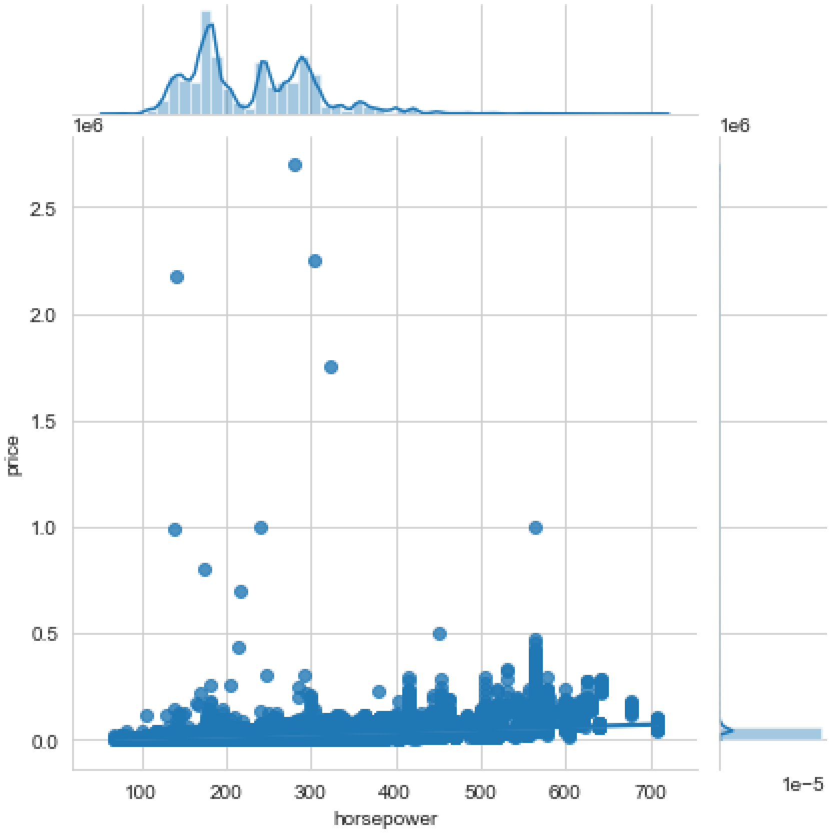
In [10]:

```
sns.boxplot('wheel_system', 'price', data=df, palette="pastel")
plt.savefig('attributes/wheel_system.png')
```



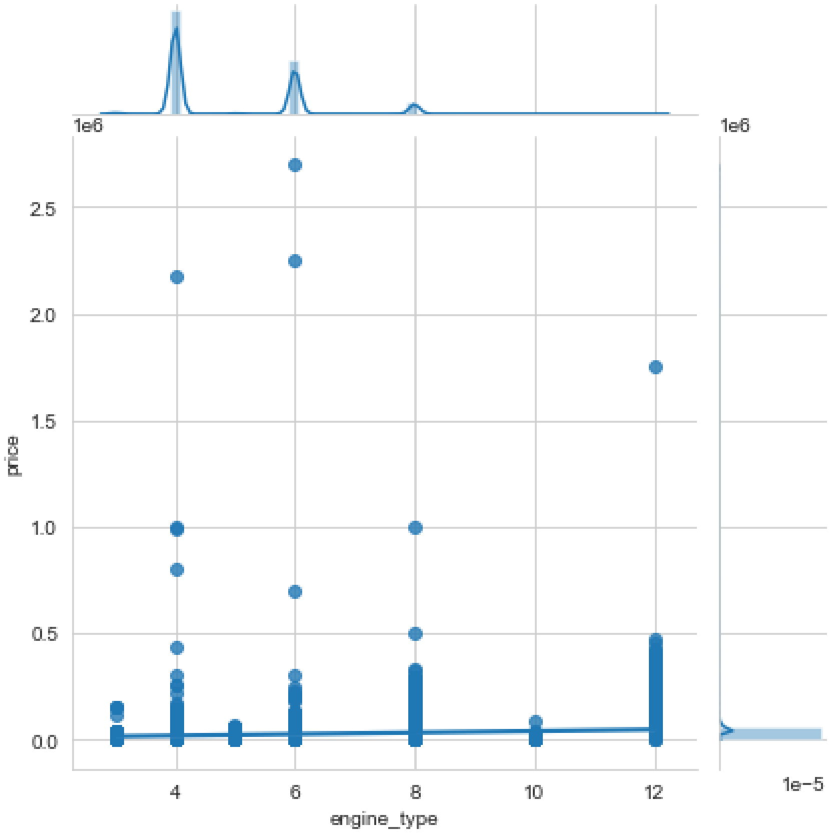
In [11]:

```
sns.jointplot("horsepower", "price", data=df, kind='reg')
plt.savefig('attributes/horsepower.png')
```



In [12]:

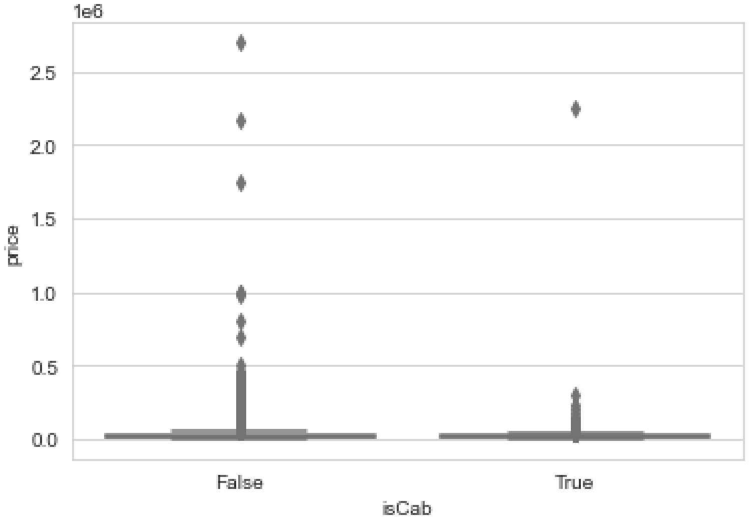
```
sns.jointplot("engine_type", "price", data=df, kind='reg')
plt.savefig('attributes/engine.png')
```



Car conditions

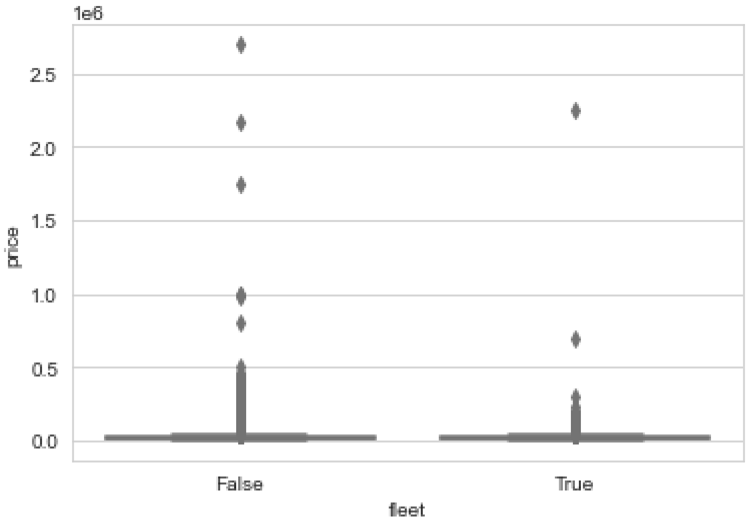
In [13]:

```
sns.boxplot('isCab', 'price', data=df, palette="pastel")
plt.savefig('conditions/is_cab.png')
```



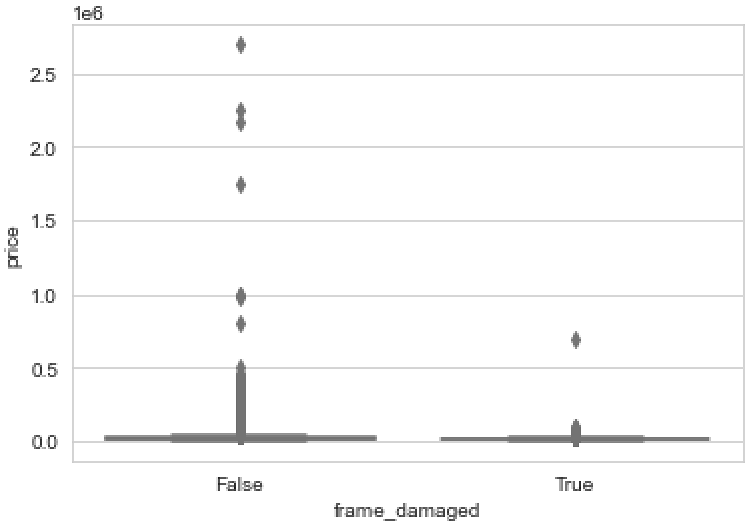
In [14]:

```
sns.boxplot('fleet', 'price', data=df, palette="pastel")
plt.savefig('conditions/fleet.png')
```



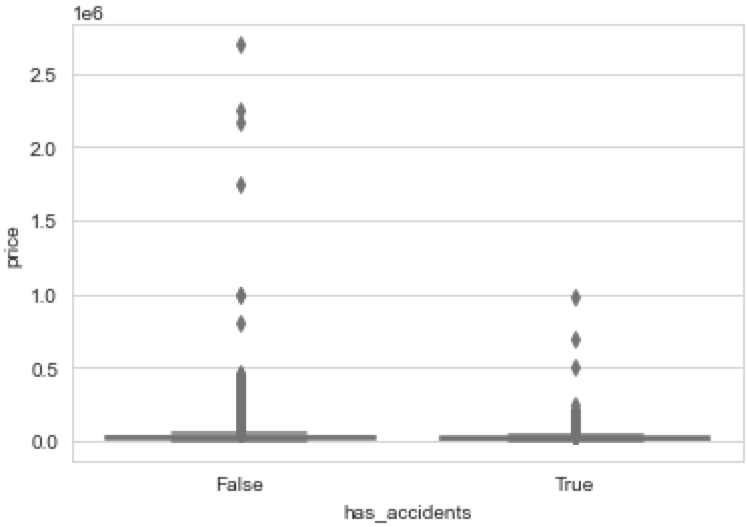
In [15]:

```
sns.boxplot('frame_damaged', 'price', data=df, palette="pastel")
plt.savefig('conditions/frame_damaged.png')
```



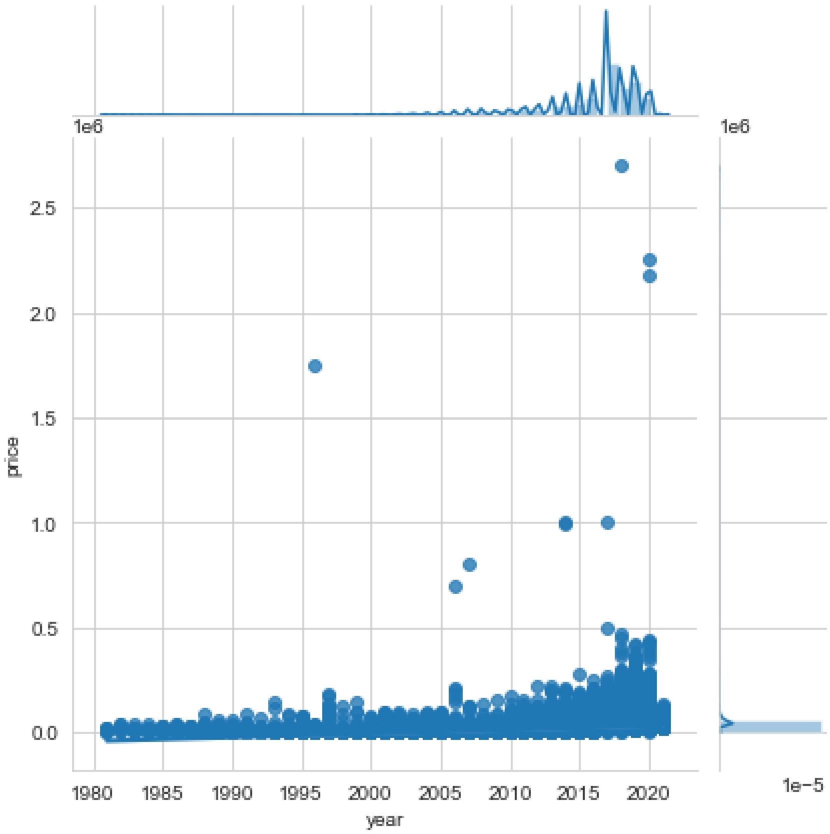
In [16]:

```
sns.boxplot('has_accidents', 'price', data=df, palette="pastel")
plt.savefig('conditions/has_accidents.png')
```



In [17]:

```
sns.jointplot("year", "price", data=df, kind='reg')
plt.savefig('conditions/year.png')
```



In [ ]: