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a minimum range\n",
    " of 400 km.\n",
    " a) Your task is to filter out EVs that meet these criteria.\n",
    " b) Group them by the manufacturer (Make).\n",
    " c) Calculate the average battery capacity for each manufacturer. "
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      "                              Car full name           Make  \\\n",
      "0                 Audi e-tron 55 quattro           Audi   \n",
      "1                 Audi e-tron 50 quattro           Audi   \n",
      "2                  Audi e-tron S quattro           Audi   \n",
      "3       Audi e-tron Sportback 50 quattro           Audi   \n",
      "4       Audi e-tron Sportback 55 quattro           Audi   \n",
      "5        Audi e-tron Sportback S quattro           Audi   \n",
      "6                                 BMW i3            BMW   \n",
      "7                               BMW i3s             BMW   \n",
      "8                               BMW iX3             BMW   \n",
      "9                          CitroÃ«n Ã«-C4        CitroÃ«n   \n",
      "10              DS DS3 Crossback e-tense              DS   \n",
      "11                              Honda e           Honda   \n",
      "12                        Honda e Advance         Honda   \n",
      "13                Hyundai Ioniq electric        Hyundai   \n",
      "14         Hyundai Kona electric 39.2kWh        Hyundai   \n",
      "15           Hyundai Kona electric 64kWh        Hyundai   \n",
      "16                        Jaguar I-Pace          Jaguar   \n",
      "17                    Kia e-Niro 39.2kWh             Kia   \n",
      "18                      Kia e-Niro 64kWh             Kia   \n",
      "19                    Kia e-Soul 39.2kWh             Kia   \n",
      "20                      Kia e-Soul 64kWh             Kia   \n",
      "21                           Mazda MX-30           Mazda   \n",
```

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      "22                    Mercedes-Benz EQC  Mercedes-Benz   \n",
      "23                       Mini Cooper SE           Mini   \n",
      "24                          Nissan Leaf         Nissan   \n",
      "25                       Nissan Leaf e+         Nissan   \n",
      "26                         Opel Corsa-e           Opel   \n",
      "27                         Opel Mokka-e           Opel   \n",
      "28                        Peugeot e-208        Peugeot   \n",
      "29                       Peugeot e-2008        Peugeot   \n",
      "30       Porsche Taycan 4S (Performance)        Porsche   \n",
      "31  Porsche Taycan 4S (Performance Plus)        Porsche   \n",
      "32                  Porsche Taycan Turbo        Porsche   \n",
      "33                Porsche Taycan Turbo S        Porsche   \n",
      "34                     Renault Zoe R110        Renault   \n",
      "35                     Renault Zoe R135        Renault   \n",
      "36                    Skoda Citigo-e iV          Skoda   \n",
      "37                      Smart fortwo EQ          Smart   \n",
      "38                     Smart forfour EQ          Smart   \n",
      "39     Tesla Model 3 Standard Range Plus          Tesla   \n",
      "40              Tesla Model 3 Long Range          Tesla   \n",
      "41             Tesla Model 3 Performance          Tesla   \n",
      "42         Tesla Model S Long Range Plus          Tesla   \n",
      "43             Tesla Model S Performance          Tesla   \n",
      "44         Tesla Model X Long Range Plus          Tesla   \n",
      "45             Tesla Model X Performance          Tesla   \n",
      "46                     Volkswagen e-up!     Volkswagen   \n",
      "47       Volkswagen ID.3 Pro Performance     Volkswagen   \n",
      "48                 Volkswagen ID.3 Pro S     Volkswagen   \n",
      "49                   Volkswagen ID.4 1st     Volkswagen   \n",
      "50             CitroÃ«n Ã«-Spacetourer (M)        CitroÃ«n   \n",
      "51              Mercedes-Benz EQV (long)  Mercedes-Benz   \n",
      "52                 Nissan e-NV200 evalia         Nissan   \n",
      "\n",
      "                           Model  Minimal price (gross) [PLN]
\\\n",
      "0             e-tron 55 quattro                      345700
\n",
      "1             e-tron 50 quattro                      308400
\n",
      "2              e-tron S quattro                      414900
\n",
      "3    e-tron Sportback 50 quattro                      319700
\n",
      "4    e-tron Sportback 55 quattro                      357000
\n",
      "5     e-tron Sportback S quattro                      426200
\n",
      "6                            i3                      169700
\n",
      "7                           i3s                      184200
\n",
      "8                           iX3                      282900
\n",
      "9                          Ã«-C4                       125000
\n",
      "10         DS3 Crossback e-tense                      159900
\n",
      "11                           e                      152900
\n",
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      "12                    e Advance                    165900
\n",
      "13                Ioniq electric                   184500
\n",
      "14         Kona electric 39.2kWh                   154400
\n",
      "15           Kona electric 64kWh                   178400
\n",
      "16                       I-Pace                    359500
\n",
      "17                e-Niro 39.2kWh                   146990
\n",
      "18                  e-Niro 64kWh                   167990
\n",
      "19                e-Soul 39.2kWh                   139900
\n",
      "20                  e-Soul 64kWh                   160990
\n",
      "21                        MX-30                    142900
\n",
      "22                          EQC                    334700
\n",
      "23                    Cooper SE                    139900
\n",
      "24                         Leaf                    122900
\n",
      "25                      Leaf e+                    164000
\n",
      "26                      Corsa-e                    128900
\n",
      "27                      Mokka-e                    139900
\n",
      "28                        e-208                    124900
\n",
      "29                        e-2008                   149400
\n",
      "30       Taycan 4S (Performance)                   457000
\n",
      "31  Taycan 4S (Performance Plus)                   482283
\n",
      "32                  Taycan Turbo                   653000
\n",
      "33                Taycan Turbo S                   794000
\n",
      "34                      Zoe R110                   135900
\n",
      "35                      Zoe R135                   142900
\n",
      "36                   Citigo-e iV                    82050
\n",
      "37                     fortwo EQ                    96900
\n",
      "38                    forfour EQ                    98900
\n",
      "39   Model 3 Standard Range Plus                   195490
\n",
      "40            Model 3 Long Range                   235490
\n",
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      "41           Model 3 Performance                        260490
\n",
      "42       Model S Long Range Plus                        368990
\n",
      "43           Model S Performance                        443990
\n",
      "44       Model X Long Range Plus                        407990
\n",
      "45           Model X Performance                        482990
\n",
      "46                         e-up!                         97990
\n",
      "47          ID.3 Pro Performance                        155890
\n",
      "48                    ID.3 Pro S                        179990
\n",
      "49                      ID.4 1st                        202390
\n",
      "50             Ã«-Spacetourer (M)                         215400
\n",
      "51                    EQV (long)                        339480
\n",
      "52                e-NV200 evalia                        164328
\n",
      "\n",
      "    Engine power [KM]  Maximum torque [Nm]              Type of
brakes  \\\n",
      "0                 360                  664         disc (front +
rear)   \n",
      "1                 313                  540         disc (front +
rear)   \n",
      "2                 503                  973         disc (front +
rear)   \n",
      "3                 313                  540         disc (front +
rear)   \n",
      "4                 360                  664         disc (front +
rear)   \n",
      "5                 503                  973         disc (front +
rear)   \n",
      "6                 170                  250         disc (front +
rear)   \n",
      "7                 184                  270         disc (front +
rear)   \n",
      "8                 286                  400         disc (front +
rear)   \n",
      "9                 136                  260         disc (front +
rear)   \n",
      "10                136                  260         disc (front +
rear)   \n",
      "11                136                  315         disc (front +
rear)   \n",
      "12                154                  315         disc (front +
rear)   \n",
      "13                136                  295         disc (front +
rear)   \n",
      "14                136                  395         disc (front +
rear)   \n",
```

```
      "15                204                 395         disc (front +
rear)   \n",
      "16                400                 696         disc (front +
rear)   \n",
      "17                136                 395         disc (front +
rear)   \n",
      "18                204                 395         disc (front +
rear)   \n",
      "19                136                 395         disc (front +
rear)   \n",
      "20                204                 395         disc (front +
rear)   \n",
      "21                145                 270         disc (front +
rear)   \n",
      "22                408                 760         disc (front +
rear)   \n",
      "23                184                 270         disc (front +
rear)   \n",
      "24                150                 320         disc (front +
rear)   \n",
      "25                217                 340         disc (front +
rear)   \n",
      "26                136                 260         disc (front +
rear)   \n",
      "27                136                 260         disc (front +
rear)   \n",
      "28                136                 260         disc (front +
rear)   \n",
      "29                136                 260         disc (front +
rear)   \n",
      "30                435                 640         disc (front +
rear)   \n",
      "31                490                 650         disc (front +
rear)   \n",
      "32                625                 850         disc (front +
rear)   \n",
      "33                625                1050         disc (front +
rear)   \n",
      "34                108                 225         disc (front +
rear)   \n",
      "35                135                 245         disc (front +
rear)   \n",
      "36                 83                 212  disc (front) + drum
(rear)   \n",
      "37                 82                 160  disc (front) + drum
(rear)   \n",
      "38                 82                 160  disc (front) + drum
(rear)   \n",
      "39                285                 450         disc (front +
rear)   \n",
      "40                372                 510         disc (front +
rear)   \n",
      "41                480                 639         disc (front +
rear)   \n",
      "42                525                 755         disc (front +
rear)   \n",
      "43                772                1140         disc (front +
rear)   \n",
```

```
      "44                525                  755         disc (front +
rear)   \n",
      "45                772                 1140         disc (front +
rear)   \n",
      "46                 83                  210  disc (front) + drum
(rear)   \n",
      "47                204                  310  disc (front) + drum
(rear)   \n",
      "48                204                  310  disc (front) + drum
(rear)   \n",
      "49                204                  310  disc (front) + drum
(rear)   \n",
      "50                136                  260         disc (front +
rear)   \n",
      "51                204                  362
NaN   \n",
      "52                109                  254         disc (front +
rear)   \n",
      "\n",
      "     Drive type  Battery capacity [kWh]  Range (WLTP) [km]  ...
\\\n",
      "0           4WD                    95.0                438  ...
\n",
      "1           4WD                    71.0                340  ...
\n",
      "2           4WD                    95.0                364  ...
\n",
      "3           4WD                    71.0                346  ...
\n",
      "4           4WD                    95.0                447  ...
\n",
      "5           4WD                    95.0                369  ...
\n",
      "6    2WD (rear)                    42.2                359  ...
\n",
      "7    2WD (rear)                    42.2                345  ...
\n",
      "8    2WD (rear)                    80.0                460  ...
\n",
      "9   2WD (front)                    50.0                350  ...
\n",
      "10  2WD (front)                    50.0                320  ...
\n",
      "11   2WD (rear)                    35.5                222  ...
\n",
      "12   2WD (rear)                    35.5                222  ...
\n",
      "13  2WD (front)                    38.3                311  ...
\n",
      "14  2WD (front)                    39.2                289  ...
\n",
      "15  2WD (front)                    64.0                449  ...
\n",
      "16          4WD                    90.0                470  ...
\n",
      "17  2WD (front)                    39.2                289  ...
\n",
```

```
      "18  2WD (front)                  64.0                455  ...
\n",
      "19  2WD (front)                  39.2                276  ...
\n",
      "20  2WD (front)                  64.0                452  ...
\n",
      "21  2WD (front)                  35.5                200  ...
\n",
      "22          4WD                  80.0                414  ...
\n",
      "23  2WD (front)                  28.9                234  ...
\n",
      "24  2WD (front)                  40.0                270  ...
\n",
      "25  2WD (front)                  62.0                385  ...
\n",
      "26  2WD (front)                  50.0                337  ...
\n",
      "27  2WD (front)                  50.0                324  ...
\n",
      "28  2WD (front)                  50.0                340  ...
\n",
      "29  2WD (front)                  50.0                320  ...
\n",
      "30          4WD                  79.2                407  ...
\n",
      "31          4WD                  93.4                463  ...
\n",
      "32          4WD                  93.4                450  ...
\n",
      "33          4WD                  93.4                412  ...
\n",
      "34  2WD (front)                  52.0                395  ...
\n",
      "35  2WD (front)                  52.0                395  ...
\n",
      "36  2WD (front)                  36.8                260  ...
\n",
      "37   2WD (rear)                  17.6                154  ...
\n",
      "38   2WD (rear)                  17.6                148  ...
\n",
      "39   2WD (rear)                  54.0                430  ...
\n",
      "40          4WD                  75.0                580  ...
\n",
      "41          4WD                  75.0                567  ...
\n",
      "42          4WD                 100.0                652  ...
\n",
      "43          4WD                 100.0                639  ...
\n",
      "44          4WD                 100.0                561  ...
\n",
      "45          4WD                 100.0                548  ...
\n",
      "46  2WD (front)                  32.3                258  ...
\n",
```

```
      "47   2WD (rear)                    58.0                425  ...
\n",
      "48   2WD (rear)                    77.0                549  ...
\n",
      "49   2WD (rear)                    77.0                500  ...
\n",
      "50  2WD (front)                    50.0                230  ...
\n",
      "51  2WD (front)                    90.0                356  ...
\n",
      "52  2WD (front)                    40.0                200  ...
\n",
      "\n",
      "    Permissable gross weight [kg]  Maximum load capacity [kg]
\\\n",
      "0                          3130.0                       640.0
\n",
      "1                          3040.0                       670.0
\n",
      "2                          3130.0                       565.0
\n",
      "3                          3040.0                       640.0
\n",
      "4                          3130.0                       670.0
\n",
      "5                          3130.0                       565.0
\n",
      "6                          1730.0                       440.0
\n",
      "7                          1730.0                       440.0
\n",
      "8                          2725.0                       540.0
\n",
      "9                          2000.0                       459.0
\n",
      "10                         1975.0                       450.0
\n",
      "11                         1855.0                       342.0
\n",
      "12                         1870.0                       350.0
\n",
      "13                         1970.0                       518.0
\n",
      "14                         2020.0                       485.0
\n",
      "15                         2170.0                       485.0
\n",
      "16                         2670.0                       537.0
\n",
      "17                         2080.0                       488.0
\n",
      "18                         2230.0                       493.0
\n",
      "19                         1682.0                       490.0
\n",
      "20                         1682.0                       498.0
\n",
```

```
      "21                    2119.0                    474.0
\n",
      "22                    2940.0                    445.0
\n",
      "23                    1770.0                    480.0
\n",
      "24                    1995.0                    450.0
\n",
      "25                    2140.0                    435.0
\n",
      "26                    1916.0                    367.0
\n",
      "27                    2015.0                    417.0
\n",
      "28                    1918.0                    463.0
\n",
      "29                       NaN                      NaN
\n",
      "30                    2880.0                    740.0
\n",
      "31                    2880.0                    660.0
\n",
      "32                    2880.0                    575.0
\n",
      "33                    2870.0                    575.0
\n",
      "34                    1988.0                    425.0
\n",
      "35                    1988.0                    486.0
\n",
      "36                    1530.0                    367.0
\n",
      "37                    1310.0                    290.0
\n",
      "38                    1570.0                    445.0
\n",
      "39                       NaN                      NaN
\n",
      "40                       NaN                      NaN
\n",
      "41                       NaN                      NaN
\n",
      "42                       NaN                      NaN
\n",
      "43                       NaN                      NaN
\n",
      "44                       NaN                      NaN
\n",
      "45                       NaN                      NaN
\n",
      "46                    1530.0                    370.0
\n",
      "47                    2270.0                    540.0
\n",
      "48                    2280.0                    412.0
\n",
      "49                    2660.0                    661.0
\n",
```

```
      "50                          2810.0                       1056.0
\n",
      "51                          3500.0                        865.0
\n",
      "52                          2250.0                        658.0
\n",
      "\n",
      "    Number of seats  Number of doors  Tire size [in]  Maximum
speed [kph]  \\\n",
      "0                   5                5               19
200   \n",
      "1                   5                5               19
190   \n",
      "2                   5                5               20
210   \n",
      "3                   5                5               19
190   \n",
      "4                   5                5               19
200   \n",
      "5                   5                5               20
210   \n",
      "6                   4                5               19
160   \n",
      "7                   4                5               20
160   \n",
      "8                   5                5               19
180   \n",
      "9                   5                5               16
150   \n",
      "10                  5                5               17
150   \n",
      "11                  5                5               16
145   \n",
      "12                  5                5               17
145   \n",
      "13                  5                5               16
165   \n",
      "14                  5                5               17
155   \n",
      "15                  5                5               17
167   \n",
      "16                  5                5               20
200   \n",
      "17                  5                5               17
155   \n",
      "18                  5                5               17
167   \n",
      "19                  5                5               17
157   \n",
      "20                  5                5               17
167   \n",
      "21                  5                5               18
140   \n",
      "22                  5                5               19
180   \n",
      "23                  4                3               16
150   \n",
```

```
      "24                5                5                16
144   \n",
      "25                5                5                17
157   \n",
      "26                5                5                16
150   \n",
      "27                5                5                16
150   \n",
      "28                5                5                16
150   \n",
      "29                5                5                16
150   \n",
      "30                4                4                19
250   \n",
      "31                4                4                19
250   \n",
      "32                4                4                20
260   \n",
      "33                4                4                21
260   \n",
      "34                5                5                15
135   \n",
      "35                5                5                16
140   \n",
      "36                4                5                14
130   \n",
      "37                2                3                15
130   \n",
      "38                4                5                15
130   \n",
      "39                5                5                18
225   \n",
      "40                5                5                18
233   \n",
      "41                5                5                20
261   \n",
      "42                5                5                19
250   \n",
      "43                5                5                21
261   \n",
      "44                7                5                20
250   \n",
      "45                7                5                20
261   \n",
      "46                4                5                14
130   \n",
      "47                5                5                18
160   \n",
      "48                5                5                19
160   \n",
      "49                5                5                20
160   \n",
      "50                8                5                16
130   \n",
      "51                6                5                17
160   \n",
      "52                5                5                15
123   \n",
```

```
      "\n",
      "    Boot capacity (VDA) [l]  Acceleration 0-100 kph [s]  \\\n",
      "0                     660.0                          5.7   \n",
      "1                     660.0                          6.8   \n",
      "2                     660.0                          4.5   \n",
      "3                     615.0                          6.8   \n",
      "4                     615.0                          5.7   \n",
      "5                     615.0                          4.5   \n",
      "6                     260.0                          8.1   \n",
      "7                     260.0                          6.9   \n",
      "8                     510.0                          6.8   \n",
      "9                     380.0                          9.5   \n",
      "10                    350.0                          8.7   \n",
      "11                    171.0                          9.0   \n",
      "12                    171.0                          8.3   \n",
      "13                    357.0                          9.9   \n",
      "14                    332.0                          9.7   \n",
      "15                    332.0                          7.6   \n",
      "16                    656.0                          4.8   \n",
      "17                    451.0                          9.8   \n",
      "18                    451.0                          7.8   \n",
      "19                    315.0                          9.9   \n",
      "20                    315.0                          7.9   \n",
      "21                    350.0                          9.7   \n",
      "22                    500.0                          5.1   \n",
      "23                    211.0                          7.3   \n",
      "24                    435.0                          7.9   \n",
      "25                    435.0                          6.9   \n",
      "26                    267.0                          8.1   \n",
      "27                    310.0                          9.0   \n",
      "28                    311.0                          8.1   \n",
      "29                    434.0                          NaN   \n",
      "30                    488.0                          4.0   \n",
      "31                    488.0                          4.0   \n",
      "32                    447.0                          3.2   \n",
      "33                    447.0                          2.8   \n",
      "34                    338.0                         11.4   \n",
      "35                    338.0                          9.5   \n",
      "36                    250.0                         12.3   \n",
      "37                    185.0                         11.6   \n",
      "38                    260.0                         12.7   \n",
      "39                    425.0                          5.6   \n",
      "40                    425.0                          4.4   \n",
      "41                    425.0                          3.3   \n",
      "42                    745.0                          3.8   \n",
      "43                    745.0                          2.5   \n",
      "44                    857.0                          4.6   \n",
      "45                    857.0                          2.8   \n",
      "46                    250.0                         11.9   \n",
      "47                    385.0                          7.3   \n",
      "48                    385.0                          7.9   \n",
      "49                    543.0                          8.5   \n",
      "50                    603.0                         13.1   \n",
      "51                      NaN                          NaN   \n",
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[PLN]\"]<350000) & (car_survey[\"Range (WLTP) [km]\"]>=400)]\n",
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Model  \\\n",
      "Make
\n",
      "Audi                        Audi e-tron 55 quattro            e-tron
55 quattro   \n",
      "BMW                                        BMW iX3
iX3   \n",
      "Hyundai               Hyundai Kona electric 64kWh          Kona
electric 64kWh   \n",
      "Kia                                Kia e-Niro 64kWh
e-Niro 64kWh   \n",
      "Mercedes-Benz                   Mercedes-Benz EQC
EQC   \n",
      "Tesla          Tesla Model 3 Standard Range Plus  Model 3 Standard
Range Plus   \n",
      "Volkswagen       Volkswagen ID.3 Pro Performance         ID.3 Pro
Performance   \n",
      "\n",
```

```
      "                Minimal price (gross) [PLN]  Engine power [KM]
\\\n",
      "Make
\n",
      "Audi                                345700                360
\n",
      "BMW                                 282900                286
\n",
      "Hyundai                             178400                204
\n",
      "Kia                                 167990                204
\n",
      "Mercedes-Benz                       334700                408
\n",
      "Tesla                               195490                285
\n",
      "Volkswagen                          155890                204
\n",
      "\n",
      "                Maximum torque [Nm]              Type of brakes
Drive type  \\\n",
      "Make
\n",
      "Audi                            664         disc (front + rear)
4WD   \n",
      "BMW                             400         disc (front + rear)
2WD (rear)   \n",
      "Hyundai                         395         disc (front + rear)
2WD (front)   \n",
      "Kia                             395         disc (front + rear)
2WD (front)   \n",
      "Mercedes-Benz                   760         disc (front + rear)
4WD   \n",
      "Tesla                           450         disc (front + rear)
2WD (rear)   \n",
      "Volkswagen                      310  disc (front) + drum (rear)
2WD (rear)   \n",
      "\n",
      "                Battery capacity [kWh]  Range (WLTP) [km]
Wheelbase [cm]  ...  \\\n",
      "Make
...   \n",
      "Audi                              95.0               438
292.8  ...   \n",
      "BMW                               80.0               460
286.4  ...   \n",
      "Hyundai                           64.0               449
260.0  ...   \n",
      "Kia                               64.0               455
270.0  ...   \n",
      "Mercedes-Benz                     80.0               414
287.3  ...   \n",
      "Tesla                             54.0               430
287.5  ...   \n",
      "Volkswagen                        58.0               425
277.0  ...   \n",
      "\n",
```

```
      "                Permissable gross weight [kg]  Maximum load
capacity [kg]  \\\n",
      "Make
\n",
      "Audi                                  3130.0
640.0   \n",
      "BMW                                   2725.0
540.0   \n",
      "Hyundai                               2170.0
485.0   \n",
      "Kia                                   2230.0
493.0   \n",
      "Mercedes-Benz                         2940.0
445.0   \n",
      "Tesla                                    NaN
NaN   \n",
      "Volkswagen                            2270.0
540.0   \n",
      "\n",
      "                Number of seats  Number of doors  Tire size [in]
\\\n",
      "Make
\n",
      "Audi                          5                5              19
\n",
      "BMW                           5                5              19
\n",
      "Hyundai                       5                5              17
\n",
      "Kia                           5                5              17
\n",
      "Mercedes-Benz                 5                5              19
\n",
      "Tesla                         5                5              18
\n",
      "Volkswagen                    5                5              18
\n",
      "\n",
      "                Maximum speed [kph]  Boot capacity (VDA) [l]
\\\n",
      "Make                                                          \n",
      "Audi                          200                    660.0   \n",
      "BMW                           180                    510.0   \n",
      "Hyundai                       167                    332.0   \n",
      "Kia                           167                    451.0   \n",
      "Mercedes-Benz                 180                    500.0   \n",
      "Tesla                         225                    425.0   \n",
      "Volkswagen                    160                    385.0   \n",
      "\n",
      "                Acceleration 0-100 kph [s]  Maximum DC charging
power [kW]  \\\n",
      "Make
\n",
      "Audi                                  5.7
150   \n",
      "BMW                                   6.8
150   \n",
```

```
      "Hyundai                                   7.6
100   \n",
      "Kia                                       7.8
100   \n",
      "Mercedes-Benz                             5.1
110   \n",
      "Tesla                                     5.6
150   \n",
      "Volkswagen                                7.3
100   \n",
      "\n",
      "               mean - Energy consumption [kWh/100 km]  \n",
      "Make                                                   \n",
      "Audi                                            24.45  \n",
      "BMW                                             18.80  \n",
      "Hyundai                                         15.40  \n",
      "Kia                                             15.90  \n",
      "Mercedes-Benz                                   21.85  \n",
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return the top three EVs\n",
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elektryczne\"):\n",
    "        \n",
    "        self.car_survey = pd.read_excel(file_path,
sheet_name=sheet_name)\n",
    "\n",
    "    def recommend(self,budget, min_range, min_battery):\n",
    "        filtered_df = self.car_survey[\n",
    "            (self.car_survey[\"Minimal price (gross) [PLN]\"] <=
budget) &\n",
    "            (self.car_survey[\"Range (WLTP) [km]\"] >= min_range)
&\n",
    "            (self.car_survey[\"Battery capacity [kWh]\"] >=
min_battery)\n",
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    "        \n",
    "        recommended_evs = filtered_df.sort_values(by=\"Range (WLTP)
[km]\", ascending=False).head(3)\n",
    "\n",
    "        return recommended_evs[[\"Car full name\", \"Minimal price
(gross) [PLN]\", \"Battery capacity [kWh]\", \"Range (WLTP) [km]\"]]\n",
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    "print(\"Top 3 EV Recommendations:\")\n",
    "print(top_evs)"
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there is a significant\n",
    " difference in the average Engine power [KM] of vehicles
manufactured by two leading\n",
    " manufacturers i.e. Tesla and Audi. What insights can you draw from
the test results?\n",
    " Recommendations and Conclusion: Provide actionable insights based
on your analysis.\n",
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power [KM]\"]\n",
    "audi_power = car_survey[car_survey[\"Make\"] == \"Audi\"][\"Engine
power [KM]\"]\n",
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    "t_stat, p_value = stats.ttest_ind(tesla_power, audi_power,
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    "print(f\"T-Statistic: {t_stat:.4f}\")\n",
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    "T-Statistic: 1.7940 â†’ This indicates the difference in means
between Tesla and Audi's engine power, \n",
    "but we need to check the p-value to determine significance.\n",
    "P-Value: 0.1068 â†’ This is greater than 0.05, meaning we fail to
reject the null hypothesis (Hâ‚€).\n",
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    "Conclusion:\n",
    "\n",
    "Since p-value (0.1068) > 0.05, we do not have enough statistical
evidence to say that Tesla and Audi have significantly different average
engine power.\n",
    "This suggests that the engine power between the two brands is not
significantly different, at least based on the available data.\n",
    "\n",
    "Insights:\n",
    "\n",
    "1)If Teslaâ€™s power is significantly higher\n",
    "Tesla likely focuses on high-performance EVs.\n",
    "Audi may have more efficient, balanced-power models.\n",
    "2)If thereâ€™s no significant difference\n",
    "Tesla and Audi might be competing at similar power levels.\n",
    "Other factors (range, battery efficiency, price) may differentiate
them.\n",
    "\n",
    "Recommendations\n",
```

```
    "1)For Audi (if Tesla has higher power):\n",
    "\n",
    "Consider increasing engine power in sports EVs to compete with
Tesla.\n",
    "Focus on battery efficiency rather than just power.\n",
    "\n",
    "2)For Tesla (if power is higher but not leading to sales
growth):\n",
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    "Optimize power-to-efficiency ratio to increase range.\n",
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