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              "          const dataTable =\n",
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{});\n",
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              "\n",
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+\n",
              "            '<a target=\"_blank\"
href=https://colab.research.google.com/notebooks/data_table.ipynb>data table
notebook</a>'\n",
              "            + ' to learn more about interactive tables.';\n",
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2920   \n",
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2910   \n",
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3310   \n",
              "4  6762812919  42491                   3                 2.00
2710   \n",
              "\n",
              "   lot area  number of floors  waterfront present  number of
views  \\\n",
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0   \n",
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0   \n",
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\\\n",
              "0                       5  ...                   280        1921
\n",
              "1                       5  ...                  1010        1909
\n",
              "2                       3  ...                     0        1939
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              "3                       3  ...                     0        2001
\n",
              "4                       4  ...                   830        1929
\n",
              "\n",
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living_area_renov  \\\n",
              "0                0       122003    52.8645   -114.557
2880   \n",
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2470   \n",
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2940   \n",
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3350   \n",
              "4                0       122006    52.9047   -114.485
2060   \n",
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airport  \n",
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```

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"      <th>lot area</th>\n",
"      <th>number of floors</th>\n",
"      <th>waterfront present</th>\n",
"      <th>number of views</th>\n",
"      <th>condition of the house</th>\n",
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"      <th>Renovation Year</th>\n",
"      <th>Postal Code</th>\n",
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"      <td>1929</td>\n",
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"      <td>-114.485</td>\n",
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table.\"\n",
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2.06.94z\"/><path d=\"M17.41 7.96l-1.37-1.37c-.4-.4-.92-.59-1.43-.59-.52 0-
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              "      box-shadow: 0px 1px 2px rgba(60, 64, 67, 0.3), 0px 1px 3px
1px rgba(60, 64, 67, 0.15);\n",
              "      fill: #174EA6;\n",
              "    }\n",
              "\n",
              "    [theme=dark] .colab-df-convert {\n",
              "      background-color: #3B4455;\n",
              "      fill: #D2E3FC;\n",
              "    }\n",
              "\n",
              "    [theme=dark] .colab-df-convert:hover {\n",
              "      background-color: #434B5C;\n",
              "      box-shadow: 0px 1px 3px 1px rgba(0, 0, 0, 0.15);\n",
              "      filter: drop-shadow(0px 1px 2px rgba(0, 0, 0, 0.3));\n",
              "      fill: #FFFFFF;\n",
              "    }\n",
              "  </style>\n",
              "\n",
              "      <script>\n",
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              "          document.querySelector('#df-ec924a6c-04fe-4f66-8f41-
74be4beebd59 button.colab-df-convert');\n",
              "        buttonEl.style.display =\n",
              "          google.colab.kernel.accessAllowed ? 'block' :
'none';\n",
              "\n",
              "        async function convertToInteractive(key) {\n",
              "          const element = document.querySelector('#df-ec924a6c-
04fe-4f66-8f41-74be4beebd59');\n",
              "          const dataTable =\n",
              "            await
google.colab.kernel.invokeFunction('convertToInteractive',\n",
              "                                                     [key],
{});\n",
              "          if (!dataTable) return;\n",
              "\n",
              "          const docLinkHtml = 'Like what you see? Visit the '
+\n",
              "            '<a target=\"_blank\"
href=https://colab.research.google.com/notebooks/data_table.ipynb>data table
notebook</a>'\n",
              "            + ' to learn more about interactive tables.';\n",
              "          element.innerHTML = '';\n",
              "          dataTable['output_type'] = 'display_data';\n",
              "          await google.colab.output.renderOutput(dataTable,
element);\n",
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              "          docLink.innerHTML = docLinkHtml;\n",
              "          element.appendChild(docLink);\n",
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```
              "           id   Date  number of bedrooms  number of bathrooms
living area  \\\n",
              "0  6762810145  42491                   5                 2.50
3650   \n",
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2920   \n",
              "2  6762810998  42491                   5                 2.75
2910   \n",
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3310   \n",
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2710   \n",
              "\n",
              "   lot area  number of floors  waterfront present  number of
views  \\\n",
              "0      9050               2.0                   0
4   \n",
              "1      4000               1.5                   0
0   \n",
              "2      9480               1.5                   0
0   \n",
              "3     42998               2.0                   0
0   \n",
              "4      4500               1.5                   0
0   \n",
              "\n",
              "   condition of the house  ...  Area of the basement  Built Year
\\\n",
              "0                       5  ...                   280        1921
\n",
              "1                       5  ...                  1010        1909
\n",
              "2                       3  ...                     0        1939
\n",
              "3                       3  ...                     0        2001
\n",
              "4                       4  ...                   830        1929
\n",
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living_area_renov  \\\n",
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2880   \n",
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2470   \n",
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2940   \n",
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3350   \n",
              "4                0       122006    52.9047   -114.485
2060   \n",
              "\n",
              "   lot_area_renov  Number of schools nearby  Distance from the
airport  \n",
              "0            5400                         2
58  \n",
              "1            4000                         2
51  \n",
              "2            6600                         1
53  \n",
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76  \n",
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{});\n",
              "          if (!dataTable) return;\n",
              "\n",
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+\n",
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href=https://colab.research.google.com/notebooks/data_table.ipynb>data table
notebook</a>'\n",
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Renovation Year  \\\n",
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5400   \n",
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42847   \n",
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1px rgba(60, 64, 67, 0.15);\n",
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```
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              "      filter: drop-shadow(0px 1px 2px rgba(0, 0, 0, 0.3));\n",
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              "          const dataTable =\n",
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google.colab.kernel.invokeFunction('convertToInteractive',\n",
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{});\n",
              "          if (!dataTable) return;\n",
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              "          const docLinkHtml = 'Like what you see? Visit the '
+\n",
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href=https://colab.research.google.com/notebooks/data_table.ipynb>data table
notebook</a>'\n",
              "            + ' to learn more about interactive tables.';\n",
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element);\n",
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\n",
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\n",
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\n",
```

```
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Renovation Year  \\\n",
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0   \n",
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lot_area_renov  \\\n",
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Price  \n",
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          "      <th>number of views</th>\n",
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          "      <th>grade of the house</th>\n",
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          "      <th>...</th>\n",
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          "      <th>Renovation Year</th>\n",
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"      <td>8</td>\n",
"      <td>2910</td>\n",
"      <td>...</td>\n",
"      <td>1939</td>\n",
"      <td>0</td>\n",
"      <td>122004</td>\n",
```

```
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                "      <td>6600</td>\n",
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                "      <td>53</td>\n",
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                "      <td>42491</td>\n",
                "      <td>4</td>\n",
                "      <td>2.50</td>\n",
                "      <td>3310</td>\n",
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                "      <td>0</td>\n",
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                "      <td>3310</td>\n",
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                "      <td>-114.321</td>\n",
                "      <td>3350</td>\n",
                "      <td>42847</td>\n",
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                "      <td>76</td>\n",
                "      <td>838000</td>\n",
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                "    <tr>\n",
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                "      <td>2710</td>\n",
                "      <td>1.5</td>\n",
                "      <td>0</td>\n",
                "      <td>4</td>\n",
                "      <td>8</td>\n",
                "      <td>1880</td>\n",
                "      <td>...</td>\n",
                "      <td>1929</td>\n",
                "      <td>0</td>\n",
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                "      <td>1</td>\n",
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                "      <td>805000</td>\n",
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                "  </tbody>\n",
                "</table>\n",
                "<p>5 rows Ã□ 21 columns</p>\n",
                "</div>\n",
                "      <button class=\"colab-df-convert\"
onclick=\"convertToInteractive('df-84dfb0ee-b436-497e-8097-4dc8ee1a520b')\"\n",
                "              title=\"Convert this dataframe to an interactive
table.\"\n",
```

```
              "              style=\"display:none;\">\n",
              "        \n",
              "  <svg xmlns=\"http://www.w3.org/2000/svg\"
height=\"24px\"viewBox=\"0 0 24 24\"\n",
              "       width=\"24px\">\n",
              "    <path d=\"M0 0h24v24H0V0z\" fill=\"none\"/>\n",
              "    <path d=\"M18.56 5.44l.94 2.06.94-2.06 2.06-.94-2.06-.94-.94-
2.06-.94 2.06-2.06.94zm-11 1L8.5 8.5l.94-2.06 2.06-.94-2.06-.94L8.5 2.5l-.94
2.06-2.06.94zm10 10l.94 2.06.94-2.06 2.06-.94-2.06-.94-.94-2.06-.94 2.06-
2.06.94z\"/><path d=\"M17.41 7.96l-1.37-1.37c-.4-.4-.92-.59-1.43-.59-.52 0-
1.04.2-1.43.59L10.3 9.45l-7.72 7.72c-.78.78-.78 2.05 0 2.83L4 21.41c.39.39.9.59
1.41.59.51 0 1.02-.2 1.41-.59l7.78-7.78 2.81-2.81c.8-.78.8-2.07 0-2.86zM5.41
20L4 18.59l7.72-7.72 1.47 1.35L5.41 20z\"/>\n",
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1px rgba(60, 64, 67, 0.15);\n",
              "      fill: #174EA6;\n",
              "    }\n",
              "\n",
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              "      fill: #D2E3FC;\n",
              "    }\n",
              "\n",
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              "      background-color: #434B5C;\n",
              "      box-shadow: 0px 1px 3px 1px rgba(0, 0, 0, 0.15);\n",
              "      filter: drop-shadow(0px 1px 2px rgba(0, 0, 0, 0.3));\n",
              "      fill: #FFFFFF;\n",
              "    }\n",
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              "\n",
              "      <script>\n",
              "        const buttonEl =\n",
              "          document.querySelector('#df-84dfb0ee-b436-497e-8097-
4dc8ee1a520b button.colab-df-convert');\n",
              "        buttonEl.style.display =\n",
              "          google.colab.kernel.accessAllowed ? 'block' :
'none';\n",
              "\n",
              "        async function convertToInteractive(key) {\n",
```

```
              "          const element = document.querySelector('#df-84dfb0ee-
b436-497e-8097-4dc8ee1a520b');\n",
              "          const dataTable =\n",
              "            await
google.colab.kernel.invokeFunction('convertToInteractive',\n",
              "                                                     [key],
{});\n",
              "          if (!dataTable) return;\n",
              "\n",
              "          const docLinkHtml = 'Like what you see? Visit the '
+\n",
              "            '<a target=\"_blank\"
href=https://colab.research.google.com/notebooks/data_table.ipynb>data table
notebook</a>'\n",
              "            + ' to learn more about interactive tables.';\n",
              "          element.innerHTML = '';\n",
              "          dataTable['output_type'] = 'display_data';\n",
              "          await google.colab.output.renderOutput(dataTable,
element);\n",
              "          const docLink = document.createElement('div');\n",
              "          docLink.innerHTML = docLinkHtml;\n",
              "          element.appendChild(docLink);\n",
              "        }\n",
              "      </script>\n",
              "    </div>\n",
              "  </div>\n",
              "  "
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              "           id   Date  number of bedrooms  number of bathrooms
living area  \\\n",
              "0  6762810145  42491                   5                 2.50
3650   \n",
              "1  6762810635  42491                   4                 2.50
2920   \n",
              "2  6762810998  42491                   5                 2.75
2910   \n",
              "3  6762812605  42491                   4                 2.50
3310   \n",
              "4  6762812919  42491                   3                 2.00
2710   \n",
              "\n",
              "   number of floors  number of views  condition of the
house  \\\n",
              "0               2.0                4                       5
\n",
              "1               1.5                0                       5
\n",
              "2               1.5                0                       3
\n",
              "3               2.0                0                       3
\n",
              "4               1.5                0                       4
\n",
              "\n",
              "   grade of the house  Area of the house(excluding basement)  ...
Built Year  \\\n",
              "0                  10                                  3370  ...
1921   \n",
              "1                   8                                  1910  ...
1909   \n",
              "2                   8                                  2910  ...
1939   \n",
              "3                   9                                  3310  ...
```

```
2001   \n",
              "4                    8                                    1880  ...
1929   \n",
              "\n",
              "   Renovation Year  Postal Code  Lattitude  Longitude
living_area_renov  \\\n",
              "0                0       122003    52.8645   -114.557
2880   \n",
              "1                0       122004    52.8878   -114.470
2470   \n",
              "2                0       122004    52.8852   -114.468
2940   \n",
              "3                0       122005    52.9532   -114.321
3350   \n",
              "4                0       122006    52.9047   -114.485
2060   \n",
              "\n",
              "   lot_area_renov  Number of schools nearby  Distance from the
airport  \\\n",
              "0            5400                         2
58   \n",
              "1            4000                         2
51   \n",
              "2            6600                         1
53   \n",
              "3           42847                         3
76   \n",
              "4            4500                         1
51   \n",
              "\n",
              "     Price  \n",
              "0  2380000  \n",
              "1  1400000  \n",
              "2  1200000  \n",
              "3   838000  \n",
              "4   805000  \n",
              "\n",
              "[5 rows x 21 columns]"
            ]
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        "x.head()"
      ]
    ],
  },
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      "outputId": "91d09068-b695-4263-eb48-29fe336396cd"
    },
    "outputs": [
      {
        "data": {
          "text/plain": [
```

```
            "0        2380000\n",
            "1        1400000\n",
            "2        1200000\n",
            "3         838000\n",
            "4         805000\n",
            "          ...   \n",
            "14615     221700\n",
            "14616     219200\n",
            "14617     209000\n",
            "14618     205000\n",
            "14619     146000\n",
            "Name: Price, Length: 14620, dtype: int64"
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      "y"
    ]
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    ]
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    "execution_count": null,
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    },
    "outputs": [],
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      "xtrain,xtest,ytrain,ytest =
train_test_split(x,y,test_size=0.2,random_state=12)"
    ]
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    "metadata": {
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      "from tensorflow.keras.models import Sequential\n",
      "from tensorflow.keras.layers import Dense"
    ]
  },
  {
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    "metadata": {
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```

```
      },
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        "reg.add(Dense(4,activation='relu'))\n",
        "reg.add(Dense(2,activation='relu'))\n",
        "reg.add(Dense(12,activation='relu'))\n",
        "reg.add(Dense(1,activation='linear'))"
      ]
    },
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      "execution_count": null,
      "metadata": {
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      },
      "outputs": [],
      "source": [
        "reg.compile(optimizer='adam',loss='mse',metrics=['mse'])"
      ]
    },
    {
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      "execution_count": null,
      "metadata": {
        "colab": {
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        },
        "id": "QAC-QnCp2lC2",
        "outputId": "d291e9b7-d1a9-494a-eabf-5f4fc9688e9e"
      },
      "outputs": [
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          "output_type": "stream",
          "text": [
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211456691798016.0000 - mse: 211456691798016.0000 - val_loss: 482045755392.0000 -
val_mse: 482045755392.0000\n",
            "Epoch 2/25\n",
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411386970112.0000 - mse: 411386970112.0000 - val_loss: 482045689856.0000 -
val_mse: 482045689856.0000\n",
            "Epoch 3/25\n",
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411386609664.0000 - mse: 411386576896.0000 - val_loss: 482045493248.0000 -
val_mse: 482045493248.0000\n",
            "Epoch 4/25\n",
            "1170/1170 [==============================] - 3s 3ms/step - loss:
411386511360.0000 - mse: 411386511360.0000 - val_loss: 482045231104.0000 -
val_mse: 482045231104.0000\n",
            "Epoch 5/25\n",
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411386052608.0000 - mse: 411386052608.0000 - val_loss: 482044608512.0000 -
val_mse: 482044608512.0000\n",
            "Epoch 6/25\n",
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411385659392.0000 - mse: 411385659392.0000 - val_loss: 482043985920.0000 -
val_mse: 482043985920.0000\n",
            "Epoch 7/25\n",
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411384414208.0000 - mse: 411384414208.0000 - val_loss: 482042937344.0000 -
val_mse: 482042937344.0000\n",
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```
            "Epoch 8/25\n",
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411383201792.0000 - mse: 411383201792.0000 - val_loss: 482041856000.0000 -
val_mse: 482041856000.0000\n",
            "Epoch 9/25\n",
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411382284288.0000 - mse: 411382284288.0000 - val_loss: 482040643584.0000 -
val_mse: 482040643584.0000\n",
            "Epoch 10/25\n",
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val_mse: 482039398400.0000\n",
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val_mse: 482038120448.0000\n",
            "Epoch 12/25\n",
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val_mse: 482036678656.0000\n",
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val_mse: 482035302400.0000\n",
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411376222208.0000 - mse: 411376222208.0000 - val_loss: 482034253824.0000 -
val_mse: 482034253824.0000\n",
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411374845952.0000 - mse: 411374845952.0000 - val_loss: 482032779264.0000 -
val_mse: 482032779264.0000\n",
            "Epoch 16/25\n",
            "1170/1170 [==============================] - 4s 3ms/step - loss:
411373699072.0000 - mse: 411373699072.0000 - val_loss: 482031435776.0000 -
val_mse: 482031435776.0000\n",
            "Epoch 17/25\n",
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val_mse: 482030288896.0000\n",
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            "1170/1170 [==============================] - 3s 3ms/step - loss:
411371372544.0000 - mse: 411371372544.0000 - val_loss: 482029305856.0000 -
val_mse: 482029305856.0000\n",
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            "1170/1170 [==============================] - 3s 2ms/step - loss:
411370094592.0000 - mse: 411370094592.0000 - val_loss: 482028060672.0000 -
val_mse: 482028060672.0000\n",
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val_mse: 482026586112.0000\n",
            "Epoch 21/25\n",
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411367178240.0000 - mse: 411367178240.0000 - val_loss: 482025373696.0000 -
val_mse: 482025373696.0000\n",
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411366424576.0000 - mse: 411366424576.0000 - val_loss: 482024062976.0000 -
val_mse: 482024062976.0000\n",
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            "1170/1170 [==============================] - 3s 2ms/step - loss:
411365277696.0000 - mse: 411365277696.0000 - val_loss: 482022719488.0000 -
val_mse: 482022719488.0000\n",
```

```
            "Epoch 24/25\n",
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411363835904.0000 - mse: 411363835904.0000 - val_loss: 482021408768.0000 -
val_mse: 482021408768.0000\n",
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            "1170/1170 [==============================] - 3s 2ms/step - loss:
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val_mse: 482020163584.0000\n"
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            ]
          },
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"reg.fit(xtrain,ytrain,batch_size=10,epochs=25,validation_data=(xtest,ytest))"
      ]
    },
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            "1/1 [==============================] - 0s 44ms/step\n"
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          "execution_count": 63,
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"reg.predict([[2398,2178,2467,2556,2323,2712,4534,2378,4543,2578,6734,8712,4509,
6734,3223,4534,1234,2123,3423,5145,2367,1223]])"
      ]
    }
  ],
  "metadata": {
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    }
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