```
"nbformat": 4,
"nbformat minor": 0,
"metadata": {
"colab": {
"provenance": [],
"collapsed sections": [],
"toc visible": "true"
},
"kernelspec": {
"name": "python3",
"display name": "Python 3"
},
"language_info": {
"name": "python"
"cells": [
"cell_type": "code",
"execution_count": "null",
"metadata": {
"id": "aOqC2tJgN5MW"
},
"outputs": [],
"source": [
"import pandas as pd\n",
"import numpy as np"
1
},
"cell_type": "code",
"source": [
"df=pd.read csv('/content/Churn Modelling.csv')" ],
"metadata": {
"id": "3oMGqpVzR57Z"
},
"execution_count": "null",
"outputs": []
},
"cell_type": "code",
"source": [
"df.head()"
],
"metadata": {
"colab": {
"base_uri": "https://localhost:8080/", "height": 270
},
"id": "Hili2COjSCcO",
"outputId": "46b897b4-2ce0-4bab-dbb4-0eb9e1b24a37" },
"execution count": "null",
"outputs": [
"output_type": "execute_result",
```

```
"data": {
"text/plain": [
"RowNumber Customerld Surname CreditScore Geography Gender Age \\\n",
"0 1 15634602 Hargrave 619 France Female 42 \n",
"1 2 15647311 Hill 608 Spain Female 41 \n",
"2 3 15619304 Onio 502 France Female 42 \n",
"3 4 15701354 Boni 699 France Female 39 \n",
"4 5 15737888 Mitchell 850 Spain Female 43 \n",
"\n",
"Tenure Balance NumOfProducts HasCrCard IsActiveMember \\\ n",
"0 2 0.00 1 1 1 \ n",
"1 1 83807.86 1 0 1 \ n",
"2 8 159660.80 3 1 0 \ n",
"3 1 0.00 2 0 0 \ n",
"4 2 125510.82 1 1 1 \ n",
"\n",
" EstimatedSalary Exited \n",
"0 101348.88 1 \n",
"1 112542.58 0 \n",
"2 113931.57 1 \n",
"3 93826.63 0 \n",
"4 79084.10 0 "
],
"text/html": [
"\n",
" <div id=\"df-716ad4c0-ba57-44e2-b3f6-a2ec59ce364c\">\n", " <div
class=\"colab-df-container\">\n",
" <div>\n",
"<style scoped>\n".
".dataframe tbody tr th:only-of-type {\n",
" vertical-align: middle;\n",
" }\n",
"\n",
".dataframe tbody tr th {\n",
" vertical-align: top;\n",
" }\n",
"\n",
" .dataframe thead th {\n",
" text-align: right;\n",
" }\n",
"</style>\n",
"\n",
" <thead>\n",
" \n",
" \n",
" RowNumber\n",
" CustomerId\n",
" Surname\n",
" CreditScore\n", " Geography\n", "
Gender\n", " Age\n", " Tenure\n", "
Balance\n", " NumOfProducts\n", "
HasCrCard\n", " IsActiveMember\n", "
EstimatedSalary\n", " Exited\n", " \n",
" </thead>\n",
" \n",
```

```
" \n",
" 0\n",
" 1\n",
"  15634602  n", "  Hargrave  n", "
619\n", " France\n", "
Female\n", " 42\n",
" 2\n",
"  0.00  n", "  1  n",
" 1\n",
" 1\n",
"  101348.88  \n", "  1  \n", "
" \n",
" \n",
" 1\n",
" 2\n",
" 15647311\n", " Hill\n", "
608\n", " Spain\n",
Female\n", " 41\n",
" 1\n".
" 83807.86\n", " 1\n",
" 0\n",
" 1\n",
"  112542.58  \n", "  0  \n",
" \n",
" \n",
" 2\n",
" 3\n",
" 15619304\n", " Onio\n", "
502\n", " France\n", "
Female\n", " 42\n",
" 8\n",
" 159660.80\n",
" 3\n",
" 1\n",
" 0\n",
" 113931.57\n",
" 1\n",
" \n",
" \n",
" 3\n",
" 4\n",
" 15701354\n",
" <td>Boni</td>\n",
" 699\n",
" France\n",
" Female\n",
" 39\n",
" 1\n",
" 0.00\n",
" 2\n",
" 0\n",
" 0\n",
" 93826.63\n",
" 0\n",
" \n",
```

```
" \n",
" 4\n",
" 5\n",
" 15737888\n",
" Mitchell\n",
" 850\n",
" Spain\n".
" Female\n".
" 43\n",
" 2\n",
" 125510.82\n",
" 1\n",
" 1\n",
" 1\n",
" 79084.10\n",
" 0\n",
" \n",
" \n",
"\n",
"</div>\n",
" <button class=\"colab-df-convert\"
onclick=\"convertToInteractive('df-716ad4c0-ba57-44e2-b3f6-a2ec59ce364c')\"\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 5.44I.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-.94-2.06-.94 2.06-2.06.94z\"/><path d=\"M17.41"
7.96I-1.37-1.37c-.4-.4-.92-.59-1.43-.59-.52 0- 1.04.2-1.43.59L10.3 9.45I-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-.59I7.78-7.78 2.81-2.81c.8-.78.8-2.07 0-2.86zM5.41 20L4
18.59|7.72-7.72 1.47 1.35L5.41 20z\"/>\n",
" </svq>\n",
" </button>\n",
" \n",
" <style>\n".
".colab-df-container {\n",
" display:flex;\n",
" flex-wrap:wrap;\n",
" gap: 12px;\n",
" }\n",
"\n",
".colab-df-convert {\n",
" background-color: #E8F0FE;\n",
" border: none;\n",
" border-radius: 50%;\n",
" cursor: pointer;\n",
" display: none;\n",
" fill: #1967D2;\n",
" height: 32px;\n",
" padding: 0 0 0 0;\n",
" width: 32px;\n",
" }\n",
```

```
"\n".
".colab-df-convert:hover {\n".
" background-color: #E2EBFA;\n",
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, 0, 0, 0, 0, 0, 0))
0.3));\n", " fill: #FFFFFF;\n",
" }\n",
" </style>\n",
"\n",
" <script>\n",
" const buttonEI =\n",
" document.querySelector('#df-716ad4c0-ba57-44e2-b3f6- a2ec59ce364c 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-716ad4c0-ba57-
44e2-b3f6-a2ec59ce364c');\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",
" "
"metadata": {}.
"execution count": 4
]
},
"cell type": "code",
"source": [
"df.info()"
],
```

```
"metadata": {
"colab": {
"base uri": "https://localhost:8080/"
"id": " pb9gjJBSyUn",
"outputId": "3741a4a4-e9ae-436d-d0df-902fe080ba98"
"execution count": "null",
"outputs": [
"output type": "stream",
"name": "stdout",
"text": [
"<class 'pandas.core.frame.DataFrame'>\n",
"RangeIndex: 10000 entries, 0 to 9999\n",
"Data columns (total 14 columns):\n",
" # Column Non-Null Count Dtype \n",
                                             "--- \n", " 0
RowNumber 10000 non-null int64 \n", " 1 Customerld 10000 non-null int64 \n", " 2
Surname 10000 non-null object \n", " 3 CreditScore 10000 non-null int64 \n". " 4
Geography 10000 non-null object \n", " 5 Gender 10000 non-null object \n", " 6
Age 10000 non-null int64 \n", " 7 Tenure 10000 non-null int64 \n", " 8 Balance
10000 non-null float64\n", " 9 NumOfProducts 10000 non-null int64 \n", " 10
HasCrCard 10000 non-null int64 \n", " 11 IsActiveMember 10000 non-null int64 \n",
" 12 EstimatedSalary 10000 non-null float64\n", " 13 Exited 10000 non-null int64
\n", "dtypes: float64(2), int64(9), object(3)\n", "memory usage: 1.1+ MB\n"
"cell type": "code",
"source": [
"df.isnull().sum()"
],
"metadata": {
"colab": {
"base uri": "https://localhost:8080/" },
"id": "0N2u84f7S4kt",
"outputId": "96cf3f59-382a-4f2c-fd52-01602d044197" },
"execution count": "null",
"outputs": [
"output type": "execute result",
"data": {
"text/plain": [
"RowNumber 0\n",
"CustomerId 0\n",
"Surname 0\n",
"CreditScore 0\n",
"Geography 0\n",
"Gender 0\n",
"Age 0\n",
"Tenure 0\n",
"Balance 0\n",
"NumOfProducts 0\n",
```

```
"HasCrCard 0\n",
"IsActiveMember 0\n",
"EstimatedSalary 0\n",
"Exited 0\n",
"dtype: int64"
},
"metadata": {},
"execution_count": 6
"cell_type": "code",
"source": [
"from sklearn.preprocessing import LabelEncoder" ],
"metadata": {
"id": "Ir5jBVUdTZpe"
},
"execution count": "null",
"outputs": []
},
"cell_type": "code",
"source": [
"le=LabelEncoder()"
],
"metadata": {
"id": "D W6c4u4Tm 2"
"execution_count": "null",
"outputs": []
},
"cell_type": "code",
"source": [
"df['Surname']=le.fit transform(df['Surname'])\n",
"df['Geography']=le.fit_transform(df['Geography'])\n",
"df['Gender']=le.fit transform(df['Gender'])\n"
],
"metadata": {
"id": "TA3ny5METyVH"
},
"execution_count": "null",
"outputs": []
},
"cell_type": "code",
"source": [
"df.head()"
],
"metadata": {
"colab": {
"base_uri": "https://localhost:8080/",
"height": 270
```

```
"id": "eOJd mGDUJm8",
"outputId": "adac78ef-94e8-4ba2-e3cb-a769c2348da0"
"execution count": "null",
"outputs": [
"output type": "execute_result",
"data": {
"text/plain": [
"RowNumber Customerld Surname CreditScore Geography Gender Age \\\n",
"0 1 15634602 1115 619 0 0 42 \n",
"1 2 15647311 1177 608 2 0 41 \n".
"2 3 15619304 2040 502 0 0 42 \n",
"3 4 15701354 289 699 0 0 39 \n".
"4 5 15737888 1822 850 2 0 43 \n",
"\n",
"Tenure Balance NumOfProducts HasCrCard IsActiveMember \\\ n".
"0 2 0.00 1 1 1 \
n",
"1 1 83807.86 1 0 1 \ n",
"2 8 159660.80 3 1 0 \ n",
"3 1 0.00 2 0 0 \ n",
"4 2 125510.82 1 1 1 \ n",
"\n",
" EstimatedSalary Exited \n",
"0 101348.88 1 \n",
"1 112542.58 0 \n",
"2 113931.57 1 \n",
"3 93826.63 0 \n",
"4 79084.10 0 "
],
"text/html": [
"\n",
" <div id=\"df-caf96f38-7e5f-4f89-9308-940d23387ab6\">\n", " <div
class=\"colab-df-container\">\n",
" <div>\n",
"<style scoped>\n",
".dataframe tbody tr th:only-of-type {\n",
" vertical-align: middle;\n",
" }\n",
"\n",
".dataframe tbody tr th {\n",
" vertical-align: top;\n",
" }\n",
"\n",
" .dataframe thead th {\n",
" text-align: right;\n",
" }\n",
"</style>\n",
"\n",
" <thead>\n",
" \n",
" \n",
" RowNumber\n",
```

```
" CustomerId\n",
" Surname\n",
" CreditScore\n",
" Geography\n",
" Gender\n",
" Age\n",
" Tenure\n",
" Balance\n",
" NumOfProducts\n",
" HasCrCard\n",
" IsActiveMember\n",
" EstimatedSalary\n",
" Exited\n",
" \n",
" </thead>\n",
" \n",
" \n",
" 0\n",
" 1\n".
" 15634602\n", " 1115\n", "
619\n", " 0\n", " 0\n", "
42\n", " 2\n", " 0.00\n", "
1\n", " 1\n", " 1\n", "
101348.88\n", " 1\n", " \n",
" \n",
" 1\n", " 2\n", "
15647311\n", " 1177\n", "
608\n", " 2\n", " 0\n", "
41\n", " 1\n", " 83807.86\n",
" 1\n", " 0\n", " 1\n", "
112542.58\n", " 0\n", " \n",
" \n".
" <th>2\n", " <td>3\n", "
15619304\n", " 2040\n", "
502\n", " 0\n", " 0\n", "
42\n", " 8\n", "
159660.80\n", " 3\n", " 1\n",
" 0\n", " 113931.57\n", "
1\n", " \n",
" \n",
" 3\n", " 4\n", "
15701354\n", " 289\n", "
699\n", " 0\n", " 0\n", "
39\n", " 1\n", " 0.00\n",
" 2\n".
" 0\n",
" 0\n",
" 93826.63\n",
" 0\n",
" \n",
" \n",
" 4\n",
" 5\n",
" 15737888\n",
" 1822\n",
```

```
" 850\n",
" 2\n",
" 0\n",
" 43\n",
" 2\n",
" 125510.82\n",
" 1\n",
" 1\n".
" 1\n",
" 79084.10\n",
" 0\n",
" \n",
" \n",
"\n".
"</div>\n",
" <button class=\"colab-df-convert\"
onclick=\"convertToInteractive('df-caf96f38-7e5f-4f89-9308-940d23387ab6')\"\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-.94-2.06-.94 2.06-2.06.94z\"/><path d=\"M17.41"
7.96I-1.37-1.37c-.4-.4-.92-.59-1.43-.59-.52 0- 1.04.2-1.43.59L10.3 9.45I-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-.59I7.78-7.78 2.81-2.81c.8-.78.8-2.07 0-2.86zM5.41 20L4
18.59|7.72-7.72 1.47 1.35L5.41 20z\"/>\n",
" </svq>\n",
" </button>\n",
"\n",
" <style>\n",
".colab-df-container {\n",
" display:flex;\n",
" flex-wrap:wrap;\n",
" gap: 12px;\n",
" }\n",
"\n",
".colab-df-convert {\n",
" background-color: #E8F0FE;\n",
" border: none;\n",
" border-radius: 50%;\n",
" cursor: pointer;\n",
" display: none;\n",
" fill: #1967D2;\n",
" height: 32px;\n",
" padding: 0 0 0 0;\n",
" width: 32px;\n",
" }\n",
"\n",
".colab-df-convert:hover {\n",
" background-color: #E2EBFA;\n",
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,
0.3));\n", " fill: #FFFFFF;\n",
" }\n",
" </style>\n",
"\n",
" <script>\n",
" const buttonEI =\n",
" document.querySelector('#df-caf96f38-7e5f-4f89-9308- 940d23387ab6 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-caf96f38-7e5f
4f89-9308-940d23387ab6');\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",
"metadata": {},
"execution count": 10
}
1
},
"cell type": "code",
"source": [
"df.info()"
],
"metadata": {
"colab": {
"base uri": "https://localhost:8080/" },
"id": "RA9ApVLTUL24",
"outputId": "bbf620f4-2393-4cfe-f29f-53493c52681f" },
```

```
"execution count": "null",
"outputs": [
"output type": "stream",
"name": "stdout",
"text": [
"<class 'pandas.core.frame.DataFrame'>\n", "RangeIndex: 10000 entries, 0 to
9999\n", "Data columns (total 14 columns):\n", "# Column Non-Null Count Dtype
\n", "--- ----- \n", " 0 RowNumber 10000 non-null int64 \n", " 1
CustomerId 10000 non-null int64 \n", " 2 Surname 10000 non-null int64 \n", " 3
CreditScore 10000 non-null int64 \n", " 4 Geography 10000 non-null int64 \n", " 5
Gender 10000 non-null int64 \n", " 6 Age 10000 non-null int64 \n", " 7 Tenure
10000 non-null int64 \n", " 8 Balance 10000 non-null float64\n", " 9
NumOfProducts 10000 non-null int64 \n", " 10 HasCrCard 10000 non-null int64 \n",
" 11 IsActiveMember 10000 non-null int64 \n", " 12 EstimatedSalary 10000 non-null
float64\n", " 13 Exited 10000 non-null int64 \n", "dtypes: float64(2), int64(12)\n",
"memory usage: 1.1 MB\n"
"cell type": "code",
"source": [
"import matplotlib.pyplot as plt\n",
"%matplotlib inline"
"metadata": {
"id": "qRG4VXvfUPTK"
"execution count": "null",
"outputs": []
},
"cell type": "code",
"source": [
"import seaborn as sns"
"metadata": {
"id": "saMKDs2_UdM9"
"execution count": "null",
"outputs": []
},
"cell_type": "code",
"source": [
"plt.scatter(df.index,df['Balance'])\n",
"plt.show()"
],
"metadata": {
"colab": {
"base uri": "https://localhost:8080/",
"height": 265
},
```

```
"id": "JoBAzwypUgAP",
"outputId": "712b31c8-b35a-44d3-bb95-a0fedfd91053"
"execution count": "null",
"outputs": [
"output type": "display data",
"data": {
"text/plain": [
"<Figure size 432x288 with 1 Axes>"
"image/png":
"iVBORw0KGqoAAAANSUhEUqAAAYoAAAD4CAYAAADy46FuAAAABHNCSVQICAqIfAhkiAAAAAIwSFIzAAAL
Eq AACxIB0t1+/
AAAADh0RVh0U29mdHdhcmUAbWF0cGxvdGxpYiB2ZXJzaW9uMy4yLjIsIGh0dHA6Ly9tYXRwbG90bGliLm9y
Zy+WH4yJAAAgAEIEQVR4nO2df5RcxXXnv7d7WqJHtjUjW+GgRkKYcMRBq0hjZkGOcvYYnCB+BBgDRrAQky
   rctb2rpE5WotEGwlMFiVaDPau4wTHrHGMQfzKWPxwBGvJJ+colszIIyELS0GYH1IjG9nSgMM0qGem9o+uar
1586pevffqdb/
uvp9zRugufj+gXtWrW3XvrVskhADDMAzD6Mg1OwMMwzBMtmFBwTAMwxhhQcEwDMMYYUHBMAzDGGFBw
TAMwx jpanYGXPOhD31IzJ8/v9nZYBiGaSI27tz5KyHE7KDf2k5QzJ8/H0NDQ83OBsMwTEtBRK/
pfmPVE8MwDGOEBQXDMAxjhAUFwzAMY4QFBcMwDGOEBQXDMAxjpO28npjoDA6XsWHzfrwxUsGcniJWLV
5Ss7PFMExGCJ1RENFcltpKRC8S0V4i+rxMX0dEZSLaJf8u8ZxzGxEdIKL9RLTck36RTDtARKs96acT0Q6Zv
pGlpsn06fL7Afn7fJeFZ2pC4rYn9qA8UoEAUB6p4LYn9mBwuNzsrDEMkxFsVE9jAG4VQpwNYCmAzxLR2fK3
e4QQS+TfMwAgf7sWwEIAFwH4GyLKE1EewNcAXAzgbADXea7zV/
Javw3qGlCbZPpNAl7J9HvkcYxDNmzej0p1fFJapTqODZv3NylHDMNkjVBBIYQ4LlT4ifz8GwA/
A2DSS1wB4GEhxHtCiFcAHABwrvw7llT4uRDiOlCHAVxBRATgAgCPyfMfADDgudYD8vNjAD4uj2cc8cZlJVI
6wzCdRyRjtlT99AHYIZM+R0QvENH9RNQr00oADnpOOyTTdOkfBDAihBjzpU+6lvz9LXm8P183E9EQEQ0dOX
lkSpE6njk9xUjpDMN0HtaCqojeB+BxALclId4G8HUAZwBYAuAwgLtTyaEFQoj7hBD9Qoj+2bMDQ5UwGlYtX
4BilT8prVjlY9XyBU3KEcMwWcPK64mlCqqJiQeFEE8AqBDil57fvwHqKfm1DGCu5/
RTZRo06b8G0ENEXXLW4D1eXesQEXUBmCmPZxyhvJvY64lhGB2hgkLaBL4J4GdCiC970k8RQhyWXz8B4Kfy
8 yYA3yWiLwOYA+BMAD8GQADOJKLTURMA1wL4j0IIQURbAVyNmt3iRgDf81zrRgA/
kr9vEbzJt3MG+kosGBiG0Wlzo1gG4l8A7CGiXTLtz1DzWloCQAB4FcCfAoAQYi8RPQLgRdQ8pj4rhBgHACL
6HIDNAPIA7hdC7JXX+yKAh4noTgDDqAkmyP//
 qYqOADiKmnBhGIZhGqi12wC9v79fcJhxhmGYaBDRTiFEf9BvvDKbyRy8UpxhsqULCiZTqJXiahGqWikOqIU
FwzQJDgrlZApeKc4w2YMFBZMpeKU4w2QPFhRMpuCV4gyTPVhQMJmCV4ozTPZgYzaTKXilOMNkDxYUTOb
IMky1Y9cQwDMMYYUHBMAzDGGFBwTAMwxhhQcEwDMMYYUHBMAzDGGGvJ6Yl4cCBTKPp5DbHgoJpOT
hwINNoO
r3NsegJaTk4cCDTaDq9zbGqYFoODhzINJpOb3MsKJiWqwMHMo2m09scCwqm5eDAqc1ncLiMZeu34PTVT2PZ
+i0YHC43O0up0ultjo3ZGaGTPSqiwoEDm0snGnY7vc2REKLZeXBKf3+/GBoaSnSNRnfa/
hcPqI1W7rpyUeh9syZqOD/
tz7L1W1AO0M2XeorYtvqCJuSlcQER7RRC9Af9xjMKH3FGS0k7I5NHhek6WRvZcX46g0407Hb6gINtFD6ius
Gpzqq8UoHAic4ois427ouXNZc9zk9n4Nqwm3V7h4t3vNVhQeEjaqdt6oxsX4C4L17WRnacn87ApWG3FTph3
Tt+y8ZdmRRsacCCwkfUTlvX6agGb/MCxH3xsuayx/lpPo0YnQ/
0IXDXIYtQ6imCULNN2NiTqmiFWZ9pYJFFwZYGbKPwsWr5qkDDsq7TntNTDDTs5Yms7Q5xPSqi5jVt4uYnLf
1v1p5P2jTSJqPbhTBqXaY163PZpnTvuMIr2NrVjsGCwkfUTIvXGfmFhEL3AsTZ/
iNrLntx8pNm5+bi+Xq7nJnFAoiAkdFq0591EHGdllwRpy51nXCUWZ9fKJx/
1mw8vrPsrE0FveN+1D3a1XGC3WMdEDR62bB5f2wXwk7ysMiyq2WQ27IXWxdmm/u4qO/TVz+NoLeZALyy/
tJEebQhTl0mcQ3XnU9A4HPoKRawa+2FodfU3Uf3TgM1DcJ4QF+aZjt23U+we2zK6GYDcdUw7Twy8ZNlg3PQ
CN2Li9G6v/
```

LEQ4ifyWjcCWCMvfacQ4gGZfg6AbwEoAngGwOeFEEJ3j8SlbhBx7A5hXlRZm2kkHZFm2eAcZsRUxyTB5Ywq

qOMzp32dnEqUubWZ8pj0F1pBv6jlSqGBwuxyqfesd1gi2qBiEpje4nWFCkRFy1R5hxr91mGi5UD2lh85ln7Qhcqoui2mRcdzZx69Kkdg3LY9Tnn1Sw695r3WwjrXbcaDVjqKAgorkAvg3gZNSE9X1CiK8Q0SwAGwHMB/

AggGuEEMeliAB8BcAlAEYB/

6uAkrLOJWreu6tJ731yASsebR5s68uJihO9SgxCVMBVYWjMYG/

fYMQC3CiHOBrAUwGeJ6GwAqwH8QAhxJoAfyO8AcDGAM+XfzQC+DgCy018L4DwA5wJYS0S98pyvA/i057yLZLruHm2LruMxeVE1Cxsf+DB3TZeuInHLoMtfkNuyFxcdgWsX3oG+EIYtX4A5PUW8MVKpr+cJwiSk4gxvcFGX/vsG6f29ede5ls+YFlxvaY3wG9GOvc9GR1rlC51RCCEOAzqsP/

+GiH4GoATgCgAfk4c9AOCHAL4o078talby7UTUQ0SnyGOfE0IcBQAieg7ARUT0QwAfEEJsl+nfBjAA4PuGe7QtrryoGoHNiNRmFhRn5uWCsPz5R+hpeD1FGYXbjPBtn/ngcDlwtA7UOhtd3a7btDcwD/

683bNiibN1FUGoDIE3iwlaM8L3knY7Dns2aZYvko2CiOYD6AOwA8DJUogAwC9QU00BNSFy0HPaIZlmSj8Uk A7DPfz5uhm12QvmzZsXpUhNJcxl10wdqA1hapNmu2uGYZO/

tF5+v9vtSYWcUQDZCgCbMqlrBQkJ1dms3LgrMN8jlSpGKtV6HlZu3IVHh17HT15/

y4la1Gbg4+8QTXXUTjY907MppVw+a0FBRO8D8DiAW4QQb9dMETWkPSFVP1vTPYQQ9wG4D6i5x6aZD1fYj ma 9ZE2XH2a8zLJHE9C8/

PnrfqRSRbGQN47CbYWuTZl0I9M8UV1dYtKDexEAtr18dEp63AGBaQHrhBCROnxXQj4r7upR7TEusQrhQUQF1ITEg0KlJ2TyL6VKCfL/N2V6GcBcz+mnyjRT+qkB6aZ7ZBqbMApRQxc0W5cfRFjokayH0GhW/

uKErbAVajZl0l1rQoh6ewqzz9hgl3D978r5Z80ObFN3X7MYr6v/

FNtWX9DQNp+IWFSmOkk7X6GCQnoxfRPAz4QQX/b8tAnAjfLzjQC+50n/

FNVYCuAtqT7aDOBCluqVRuwLAWyWv71NREvlvT7lu1bQPTKLbcOK47Uw0FfCttUXNOWF0eVHCS/ghMFdGVBdBY9LK35Rs3YtizOTsRVqNmWyuVZQ3UYITOAGvSuP7yzjqnNKmRkQZSkWlb9O/

KSZLxvV0zIAfwRgDxEpxeWfAVgP4BEiugnAawCukb89g5pr7AHU3GP/

BACEEEeJ6EsAnpfH3aEM2wA+gxPusd+XfzDcI7PY6oh1q0ezMtq2pT4CfXQ3qhO1EpVHKlj16G5s+ORi3HX losQhNLlc4iMov0pto1br+vXHtusN/HaMQp5QHT/

RagjA+WfNjlwmWwO6OicsflXKi789jx4fMy5w070rW/

cdafqqflXJXf301U83XBWl7nOLxoaUlmqKQ3gYiKObNlVRuGfFEqPulwBcv3Qetu470hR9aFxd7JLbn60bOL0kCZmg6LvjWRwbnXrttEljRH0G/

s78neNjkzpzhTcshU3YiqBjcgAmfNdVbebOgUWpIFMXIsNftqvOKeGp3YentIOgcByDw2Ws27Q3sM2oMrkOORK3bduWP0rIEZcDJz9Jnh2H8lhB3JGsbrQ4s1gIHZkJwBjMzNTIXDfAKCN33QuvS4+SpyAhAaQTXRSA8RmEBZ8zldc7q7QZ9QeNtv1CAqi1mQe3v47+02ZFqm9bQ6/pORMwKe9b9x2Z8gyCZtPe2WcQUWfVYW0/Sdu2CQhoa7h3MTsOc5EV8j6uB5csKDRE9SNXBDWsQo7w9rtVGN4NAOGL6nSNzPRbkgaoNmfZsHm/1mUzTV2t6dozi4XY19W9sCcVcpGe/

4PbX9fGFQrC2+mGddRRBKFA8tAUOnQDn6AZnY3t5fYn9xgFBBCusvJi0/

kmcdP2C3VdzstykaLpei7cxW3aRRptqQWFBI2F+P3I/

Y0yaJHWO8fHMBE0HPQQtqguzKiWZgMMKmfYFBgAervjd+ZheXonoDOxnVXpnmXU5x9VaRtlpOwyNEWS2eb 5 Z83Gd7a/Hphum2dVbtMM0cux0ar1QMem803iBu1/dgPHx7RIWLlxF4ZeO1pXA/

rPdRF2w6ZdpOHezYliANOqVT9BHbJ3tLhs/

ZZQFUxJqjF0I1QVjiEIU6Ow7TzUimNTcSvVcdz6yG6s3Lir/

sKEGTiPjVaxbP2WSNFAvcwsFrTPrjouJj33NYN7Jj0/06wq6otkev62eI3Fawb34KEdBzEuBPJEuO68ueg/bZZRrQXUZqa60XiOKNC4mlTdsXXfEev0MCN5lNlnkMoqqM2YjM3L1m+p/

a7xHOkJGcgEPbtCjqY4FSi8akBg6gxUR1g+vNiowtJwiOGtUH2YVq3qiNtZAzWD77bVF2DrviNaI7iK3RPEnJ5i5PUAfrfEkUq4Wgyoxd1Rbow2l0PlY2/

ZuAvXf+NHgfc2+X+HeWSqZzs4XA4Usjp3wagv0ujxMe3LbOM06nXxXDO4B9/Z/

nq9fY0Lge9sfx1feGRXqJvohk8uxg1L5wXe01s33ueZ1L0zygAlbK1PVGHrrV9dm9HVJcnjBPQDINMrPjhc xq2P7J7y7KoTAjOm6cfXAsCtj+zGLRt3WYUiUfmwdQH3u8j620KQJ5wLeEbhwzbWjBeTvjxsqviWHDHrXiK lfy6PVKYMjLyjtSirtuOUMSnbXj6KNYN7sHXfEesw6mHCSl2ic0RaNZC3szG5mpo4NloNHEkqb5+t+45o69 ivy39ox8HA4/

yCWucmOtBXmjT7CluumnT1eU93lbAedB20dzatnrmahequpUPdwyTsVi1fgFWP7Z5SlzY165+tel2bde7rQ O2dLRne6yiDTJWPKLM+7zP2z6SVQ0xU54YwWFD4iKNiGKlUsWZwzyQXRdtGp14Gk0BR6QInZtFBsV1s9dD N

CqHx0l6DmNC8REFh1E3PDcCkUbmOOT3FwJAZUafS1QmBnmlBM6Z3ab3OblR13JmqzktL50+vzk2y38fgcBn

9u7YIPRCnkKDFvpdhU0u4d52rfA+u1BhF9PDn3DCQ8hff6ZLziwW8M57U59LEuLaGIM0EWnEU2NB4SNuPJX vbH8dT79wGGsvWwgAVo3O+zKsWr4g1G1QXUsJCe9obdXyBYHrCol6mKgjO539opADqiFGei9q8Zkulk+QsThMWJhQajtbV9MwRipVrLt8Yf15qllQkMursvus9HmN6bbMDMJrBPYL0VWP7jbqvdS5Sfal2LB5f2B7nDGta8qswS/

YbVyje7sLWHvZwlDXb5Ow0+XRBq+3mO0su5Aj7VoZm3Oj5DXJxlmuB4MsKDwMDpcTjRSUt0aQmyWAwBEpg M IGNwtsNzHSGTL1ipoa/sVhX9i4K/

CMKEICqAmDol6LoB9pJxES1y+dh4G+kjYSqimfuvx41RxBgRyDRqfe4647b26gF1FQ/

```
pWuOagTM3U4XkEQZ/
```

V52OY4SI0aZRQeRLdH4JjchU3CLmrd+IFltOIY80R430ld2kFW2KBmxbl2da+wmfXpHD6SuI8HwcZsiWr0/ofe213ADUvnWce6qVTHtQ1ppFLF6PEx3LNiSX307zXS2WolbDcx0ul2R0N6+Ep1HLc/ubfeYUSRB3kinPlbMwJ/

 $u+68uYHGOFOxSz1FbWwbHb3dBdyzYkldFRjFqyRsxO8fSaq1Jl4DpEmnfufAliw7Y1ZoPpSueXC4HHl06F8\\ IrGKE3bNiCYCauuqM257B/ADDaZTNcZLaumzLZTKSJ/$ 

vSPjVax6rHd9U44zosWtuuX7nsUVD6jquEmhMBzX/

jYJOGaJ8INnjATquMq9RRDR6GH36pEzoMQk9d7BOnZdUQ1RCq8njhhtqYHP/

1R3Cs7bRNKCOUivPV5Iqz0CS5gqgBQ5bTxkvJiYzuwxdZOsmz9lvrMQQ2y1MwtTAPQUywYB3lK/

RQUTFGdZSuYwlrOSKUauS2bvAJN61KSCLQgWPUk0XodydofqVSRo9poNYp+P4jquMCtj+yO3Snp8DfipPHrq+Mikk7dm4c7BxZNMe4rFZvS39s8xzjq55FKtW6kTKLDjoqaNehmSd7uSuXNpn6Cnn8hRwBNneH4BYC615//o9733sZLCpjqQJGkfekM4l4Gh8tTVH2rHttd/

z3I28nPWxa2EIUGmwCWNusYXOOtH79NSIfrtRQ8o5DYPNgJUevcSj1FK/

WBCVPnm5MtIMr8JchAef5ZsyNdI4hxIWqdkiVBPtxrBvdg5cYT6wRGKtXEwjYMpYZrtIeXKcyDisOjiLrnQ 55o0pqKDVcvrqtjgkbNqoNZM7gH7xw3d2xeL6kglJuvP1yNTf6D2s+4hTH49if3ThEE1XGB25/cG/hbEKZ1RI6UUA0L46/

UYI3mjZHKIFmhjZOMK1hQSKI82PJIBf8SsKuXK6Z35azUMgC0MfsHh8t4fGc5tjFYkSfCinPnosfSOPbQjo NTVB5RYyK5lKzjS4uw+92ycRf67ni2PuO56pyStf1rQoh6JwZMNlCb1JG6tRtB+Q7q/As5wujxMcxf/fQk2waAKbaDe1cswb0rlkxKC1LZTgBY+cgu4wlz3WDi2KjdQEN1mKuWLwgdMHn3UQlb+DbQV4psN0uKbh/zlNLYv4PDjHvQhbTOKqZQ2zbhkW0p5Akbrl6Mgb4S5q9+Ovz4XM07ZGS0ah0KJQ1UaBR/KAxbTPG3dMffdeUi3P7k3tB2pBbrRcmbqu+gNRs6dZdpYZg/30HhMmxDp5uwaTNB17l5T0dvdwGX/s4p9ZD9NU/EcLeMoPUcQc/

GZp2PK1QeVmq8D70kCb9vCjPOgsKDf5VjlvF2xl5X27Aol3HpLuQwrSufOHR4o7FZPR2E0sd/ 4ZFdWjvJDZq9Q/y6dR1R7T8qX7rAdLpOLsweNmNaHn/5iakdvgpjYTo3rGMaHC5rFwX6yRPh7msW1/

Oh2+ekWMhhekhb1Nlw4mAS0GnR213AyGi1bs+zGXQVcoQNn1wcezbB+1FY4EpV0whl/

qM6CxVPKU1GqxOhbrVZpFldN64lD8LbMZgaxNZ9RwlNnup7WJ3EmWmZhJ1ajOkXXEOvHTX6779zfHySkTjKiDks8KQ3FH4Y40JMisC67vKF+MLGXVPcs8cmBK5afAq+u/11ret2VAcGU1nVM7/9yb0NM2lP/

8WFUwRTaHtx7BI76dI8o6jhUIXDuEUtVPRuL5oWXIWDrSrSu8LYi25ErHBdFtPo/vpv/AibQuxqPcUC3hubiNQZmu658C/

+KdSIHoR3p0fdO9ljUImFoTwXvVvVhr37jVIzAbV28fJdl8Tqk9JSPbExW9Ks+EeMGQKw7vKFdSNrmkJCOQUAtU7e1l51bLSKWzbuqht71wzWRtHrLl9ofMHGhXA2CFTRUnUG2L1v/

Cb0GiOVamSbjM4JxMbTSodALSSOqZMcqVRjq5W6p3Xh1fWX4u5rFtdnYGEOBY0cTo8LEXvgmlY/Superior Control of the control of

xqonSdl1B0w6CNRUOcvWb0l12u9KD63Chj/y/EEct+jlXHVA6jr+nQ/TslkBwd41YeE/

GoUprlJ5pIlltz87aUbSLlcLHXGfn+vQHQoWFBLboHxMY1FuiGnP+NT1XYVgtxESOnIEFPI5vDcWzyaktuy NgkaKitom9/yzZtfVRDYgmhnT8rFnGwrTfZQjgsn7LGtOGa7UkK5DdyhY9eQlRWMQEx0V/

RVIfz2E2tui2SNhoLawM66QUERVI8WIPFKZpCay6epGj48nDocjgCnXKBbyuGHpPAC1qL1CTD0mq7ia0bgO3aHgGYVkw+b9TlzpGHcl1EatJhdVV2RN9dDOCPIP0nA41XGB7kKu7o1HENj4/

MH6ezxSqW045T2m3UlrQMUzCsAYyK2RlHqK6l0Q6bRTYG1gNlqFfObbUXVCoHtaV+IVzl4BMFqdmBryY0LgvbHOaEBpbYMKsKCl7OudFkqvygPbaLSGYqFx9HYXcNeVi7D2soWR4kg1gzdGKs5jEgXRyrPFnmJBW4/+ztsbmt41HS8omrF/

dBDKWyVrRras07pdQDqozYBU8DrbGF3NYE5PEQN9JUzv6vhuKBACsHDO+7XPJ0iZFrQvjQs6voaytH7CtcAqFrJdvTwbcE95pFIPaAfU1nJksR2oNRhrBvckNtw3GtMo3yUCwLaXj0YePKahRu94Y3Y7r5/lom7fa1gsFnJ4d2wik/

IsZQQm76udRSeNd+WmTK0IEXDVOaVI25o2GhWd2BXZG2o0mKh7ArQSWRyp+Y2PLCTSozohMikkgNZWGR4br eLxneVMOwys27TX6fU6fkZhG8CNmUqxkEeOkHjxFMO0GjU1cXbFnWtbZ8fPKICasMiiHrcZRLEb3HXIIiyZOzO1vDBMlrHZ36JdCO0dieh+InqTiH7qSVtHRGUi2iX/LvH8dhsRHSCi/

US03JN+kUw7QESrPemnE9EOmb6RiKbJ9Ony+wH5+3xXhQ4sZ5oXbyGijJFWbtwVGpG0k+ChBtOu2LTtbwG4 KCD9HiHEEvn3DAAQ0dkArgWwUJ7zN0SUJ6l8gK8BuBjA2QCuk8cCwF/Ja/

02gGMAbpLpNwE4JtPvkcelRqes3HRJlyferSDluQUx7UqooBBC/

DMA22HjFQAeFkK8J4R4BcABAOfKvwNCiJ8LIY4DeBjAFUREAC4A8Jg8/wEAA55rPSA/Pwbg4/

J4psMo9RRxz4ol1ntLMwzjliSz5c8R0QtSNdUr00oAvDu5H5JpuvQPAhgRQoz50iddS/

7+ljx+CkR0MxENEdHQkSNHYhVmxrT29HxqB8ojFQz0IXDdeXObnRWGaQlcL7SMKyi+DuAMAEsAHAZwt7Mc x UAlcZ8Qol8I0T97dvRYJ4PDZVTYcyfTDA6XsXVfvEEAw3QSOdQWWroklnusEOKX6jMRfQPAU/JrGYB32HeqTIMm/dcAeoioS84avMerax0ioi4AM+XxztmweT/

rlzNOoza1Z5hWJ59CaPVYMwoiOsXz9RMAlEfUJgDXSo+l0wGcCeDHAJ4HcKb0cJqGmsF7k6ht2L0VwNXy/BsBfM9zrRvl56sBbBEpbfDdriuz2wkWEgxjR3VcOl/

3FDqjlKKHAHwMwleI6BCAtQA+RkRLUHN8eRXAnwKAEGIvET0C4EUAYwA+K4QYI9f5HIDNAPIA7hdCqKWDXwTwMBHdCWAYwDdl+jcB/AMRHUDNmH5t4tIGkEakRYZhmGbiOoYdpTRIb

xr9/f1iaGjI+vi4m5gzDMNkFbUHfBSIaKcQoj/

ot45fl5Sl6LEMwzBJKeTJ+T4fHS8o0t6LmWEYppF05chp5FiABUVDdthiGlZpFJXqhHPba8cLioG+Eqal4E 7GMAzTLFx7PXW8oBgcLuN4RmP2MwzDxMG17bXjBUUa+8syDMM0E9e2144XFOz1xDBMu3H+WdFDGZno eEHBX

k8Mw7Qbj+8sOzVod7ygYK8nhmHajUp13KlaveMFxUBfiUOMMwzTdrhUq3e8oACAT3zE7eIUhmGYZuNSrd7xgmJwulzHd3JgQlZh2gfXYTw6XlBs2LyfQ1gzDNNWuA7j0fGCgt1jGYZpNypVt1uxdbygYPdYhmEYMx0vKNg9lmEYxkzHC4qBvhJ6uwvNzgbDMlwzeopu+7SOFxQAcOnvnBJ+EMMwTlvwh4vd9mksKAA8/

cLhZmeBYRjGGVv3HXF6vY4XFIPDZRwbrTY7GwzDMM7gMOOOuf3Jvc3OAsMwjFNmso3CLTybYBim3SDHm3Z2

vKBgGIZpN0YcD4A7XIC4diNjGIZpNrzDnWPWXb6w2VlgGIZxiuuFxB0vKFwGzmIYhmk2Nyyd57xf63hBAQA ljvfEMEybcOfAlufXZEEBjvfEMEz74HKvbAULCtTUTye/f1qzs8EwDJOYVY/tdi4sWFCgJoF/

+Zvjzc4GwzBMYqrjAhs273d6zVBBQUT3E9GbRPRTT9osInqOiF6S//

fKdCKirxLRASJ6gYg+4jnnRnn8S0R0oyf9HCLal8/5KlFtqYjuHq4ZHC7jtif2pHFphmGYptCMEB7fAnCRL 201qB8IIc4E8AP5HQAuBnCm/LsZwNeBWqcPYC2A8wCcC2Ctp+P/

OoBPe867KOQeTuGtUBmGaTcavo5CCPHPAI76kq8A8ID8/ACAAU/

6t0WN7QB6iOgUAMsBPCeEOCqEOAbgOQAXyd8+IITYLoQQAL7tu1bQPZzCW6EyDNNOFPKUmXUUJwshVGzuXw

A4WX4uATjoOe6QTDOIHwpIN91jCkR0MxENEdHQkSPRwuvyVqgMw7QTG65enL11FHImIBzkJfY9hBD3CSH6 h RD9s2fPjnTtVcsXoFjIJ80iwzBM00ljsR0QX1D8UqqNIP9/

U6aXAcz1HHeqTA4RDzQAAB2ASURBVDOInxqQbrqHUwb6SrjrSvcLVBiGYRrJmb81I5XFdkB8QbEJgPJcuhH A9zzpn5LeT0sBvCXVR5sBXEhEvdKlfSGAzfK3t4loqfR2+pTvWkH3cM5AXwk3LJ2X1uUZhmFS56U330HfHc 82Z8EdET0E4EcAFhDRISK6CcB6AH9ARC8B+H35HQCeAfBzAAcAfAPAZwBACHEUwJcAPC//

7pBpkMf8vTznZQDfl+m6e6TCnQOLkHccw51hGKaRHBut4rYn9jgXFIRT/7cP/

f39YmhoKNa5fXc8yxsZMQzT8pR6iti2+oJI5xDRTiFEf9BvvDLbAwsJJkvwBJeJS5n3zE4P19sHMkwSfveM Wchzo8wMhQ7WTbOg8NBmWjimxfnJ629hnBtlJiAg5UUA2YYFhSQNTwGGSQKHlskOAkB1onMlRVezM5AF1g z uwYPbX292NhiGYZwwY5rbRcQdP6MYHC7jwe2vd/KskklAsZBru5X9nauJbx/+8hNuF951vKDYsHk/ CwkmNledcyqmd7XHa1TqKaLUU+T3IQZZawOZi/XU6nD0WCYJG58/

iJFKe7hVr1q+gN+HmLw3NtHsLKRKxwsKjh7LJKE63h7jb0JtFNrTXWh2VpiEpOFR3fGCgqPHmmE//s7gd8+YBYBdxNuB689zH7eu4wWFih7L/eFUCnnCdefNRSHHD6fd2fbyUcxf/

XTbqNE6hRwA9XrmiXDD0nmpRJDteEGh4JHUVMbHBZ5+4XBH+48zrU+pp+jcXTQrTAD4wEkF9BQLGBcC39n+eioRZHkdBWqeT8xUJsDxr5jGQ3C/CPqd4+27eNE/

Czw2WsWqx3YDcOf9xDMKZMvzqbuQQ3eBq4XpPHqKBdy7YgImFt0a1F0HyGsFquPC6QCYZxSoeT5IoTEVCz m 8+KWL69/P/h/

fx2i1vd3u2p1SRtqWnxwBWdMovv1ubSTcLp5kSegpFhLbi1wOgHnoCuD8s6Lts50WlerEJN1iJWUhkWcjdZ 00DPZx9gRoFFnsiidE+u7GjXRaKSbQDLhwKnDp+s+CAsDWfUcC04PCM6TdzrzTxbTXeOQAVnMB6O0u4H0n u Z1cF/KEVcsX1K/

fDEw126nOG40qNwGYNWN6Y24WgLf9uYB7CeinaO9WJ3DXIYtQ6imCgIaENyiPVLBmcA+Wrd8SW2VBqE1d e7 sL9XwHdVbVCZH6rKUV6J7W5dxov+Lfz60bEtdetrApexmYapbXx6TLnJ5i02yfvd0FbLh6sdMwHmyjgN5GM aeniIG+0qQHnqQDt+U7CSLZ6tQdp69+OvB4l4KPKHjEloYXi0veGKkgT+R074eHdhxE/

2mzJrWfDZv3442RCub0FHH+WbPx+M5yU0KJFwt5XHVOacr9CzkCKFurzQs5QiFPLWWrKxbyWLV8ATZs3m/VV3QXcpheyGNktlo5PUWMHh+LPXBJS93JMwoEr85WlR10bFYXoOnyPDhcRq4Bl8gsqTOilHZOT9H5BkHjQhg3uX/6hcNN22/

irisXof+0WZMC2fV2F7Dhk4ux4erFk2bQy+SK7WZQ6iliwycX48UvXYx7Vyyp5yvL5Kj2fAf6SqFRHwjADUvn4cUvXYzhv7gQr6y/FNtWX4C1ly2MXc607K0ksvR2O6C/

v18MDQ1FPm9wuFwf8c0sFkAEjlxW65+PjVadjlxdeDME0dtdwNrLFk6Zbg4Ol3HbE3uauglOKeEoKSpqxPzQjoOhAqBYyOOuKxdpR39J67zUU8Sq5Qti14Fr7ySVn1WP7p6ykNLbhvzvw/

Gx8dij+jjPkAC8sv7SKemDw2XcsnFXrHxEoZADxkXt2ROAXI4wbIERPcUCdq29sP5d16/

MkfWgUw+tGdwTS7OQZEZBRDuFEP2Bv7GgmEzaHesNS+elsv9FDsDM7sKURtgIVRlg7gyWnTELP37lWGorv K flCcelusTf2fnrspAjvO+krknPCQDWbdo7RYA3U2WmOvSVG3c5zcOMaXkIIbSdvk4tRQCul+EhVOdn0650z 9Dm2ZZ8nWmUdzOJKvHeFUsmqQmjDHIIwD3y/

LJHpekviw1gQ7UopdAJWKtzWVDY06iOtRH0dhcysbLa9gXNATipkEukj1YzBG/n4n3p/S9rFmZcCn/

egea0R119qU7Qm7+

+O57VtrGwereZXXufie2z8HaWpvzp8vTOe2OxBzU9xQLeG5sIbE9B9asjijD2ktaMgo3ZkrgV45o8ET48ux svvfIO4mu5UpclxXZkNwGgd8Z0vPfWu7FHg5XqONZt2lt/

Gf3OCH42bN4fWUi4Mvp2F3LonTFdK8QAJFJbxUX37AVqz8ubxxFDJ3z3NYu175Tq0GqC+gWt912lOl6/p60XUbcnrtPayxZaP79iIY/jY+OxhUSxkAeRfq/

zSnUctz5yIrRG0CAGCJ7d2t7fpUusFzZm48SostlColjI4+5rFuO5L3wMNyyd58SFsdlClipvjFRw3XlzE1 1jpFK1DooW1YVRGViV0TcJ07ry2Lb6groRM0igqejGjXRnNd2rPFLBsvVb6s9Xt9anp1jQGnSndmjmsqk6s I1XNOqJ6xT2/

PJEdcP9XVcuijyb9Z9vEpzACSeHNYN76n2OQO25rnp0N1Y9tju2DdN2thIHFhSIN6oMI+qDVQ1NVfSdA4vw8l2X4Ial7mPLZwFd1zCnp4g7BxYIFpS2cW6iLmpUo/

6BvhK2rb4gkbAYqVSxbP0WnL766Umdr5+BvhImGqQiLhbyuO68ucauuzxSqXt0BQkCwomyAaivRQJqHauaJagRddi7p+rldu+YoDrVzZImhDAK6jD859u0p0p1HA/

tODil3NUJEXuWmifCyo27jO0oCSwokE5QwCjjkhuWztM21Id2HHSXKQmheXv8qtHX9UvnTXEzLuROrCZVgvLV9ZfGEpa2dRp14yolgAaHy4ntBwRMGIGa3GnDOqDuQi5wUd80i4V+SiCrwcqdA4tw/

dJ5RmHhVQl5BYFX1anKBJxwK1cdthpBhz0/7+zDey+CPkSG10VUaQt0+J9r1FX0/

vNtVT9J3LGD6mVcCKt2FBcWFGj+dqhP7T6sHVm69u8Hai+yaY/

ftGYxpZ5iffTVf9qsqS1e0zPdObAo8n4CtnXq7+jCeGOkYqWqDJsMBdmOVOfrZ3C4jHfeGzNeb7Q6AQhMWo1/74ol+Ne/

vAT3rlhizIcSyN7Byp0Di3CPXLugQwlj7+wqqEzrNu3Fuk17p+j+qxPC+Jz8s2zvvV5Zf6k2RIY3JI9pxhKk04+yij7o/IG+kpWwiTtbLuQJ1y+dVxeWQdfRtaMksKBAbRTgUgNcLOQjjUxGKIXtyNLUoG5YOs/5Nq4IqfpxHZ/I/1Jt2Lx/yjTbFBp5NMJ+AgTzyE7NBpRgBoBtqy/

Aq+svDS33nJ5iqLqkWMgbFx+aQsH4bQBKKPn11kFrPqsTAt3TuqaoUgb6StoO3yRQw9Rr/

nN1s7iRSIWrdxcCgTaMe1csCZxle+tOJ6i9+TDNLK86p4QNm/dPGqAN9JWs7E8kzw/

SAqy9bKHxvVTqvTjMmNaFOwcW1YWITiXpWkvCggK1FyLpuF06wtRHQWGNxYR3RKBrUGrLwyijYS89xYLWy D g4XMa/vWsewUaht7swZWSoa8i69J4lgktAv2GLdzYQJJhN9aZUY6aXUNW/rk6UEDPVmTdPOqGkc8xRgsY/ O40SfcCP7blxZ+aV6vqU9ZffhXnZ+i2Yv/

pprNy4q153OgRQL7vJ2P74znKo6k83TBPQBxP1q8j8cdeUei/

OYOwtn8DVlc+1liSReywRvQrgNwDGAYwJlfqJaBaAjQDmA3gVwDVCiGNERAC+AuASAKMA/lgl8RN5nRsBrJGXvVMl8YBMPwfAtwAUATwD4PMipYUfSfcNECJ4oYvX/W3+B4v4l5ePWgkl1Rmp/W/VKuM81faxVule90/bVavFQh7rLl84JX/

eRXouFsfpVosD5vhaQUSpdVMnHNTxKvXlpBW0CFiURua8e10+daoi5Wla5vaqBgtRR4bK7gFMthH4402pVc lrN+6q50cnXlNiVQWtRwlTj5kYF6lufEzrXGybgSp70OJBnRuragfedRCm+5nqJswtGwh23S0W8jipkNOu/QiyiQRdw7WbbKlFd1JQ9AshfuVJ+2sAR4UQ64loNYBelcQXiegSAP8VNUFxHoCvCCHOk4JlCEA/avWyE8A5Urj8GMB/A7ADNUHxVSHE9015ShLCl4m/uu1CF/

+Sft2UPO7CGZ2BNU+ECSFCQwcAtQCCulZRklExveElcpqFVd4y+H3Gg4LimRYkmfLkJWxRk+11dOtPdCE51 H0BhLYjtSDMZu2ObtFa0MluU569bSmorUdZDObH5aJFf16TOgyo5+dfle1ixbuLAHxBaylMebvXt+BRd404 9djoBXdXAPiY/PwAqB8C+KJM/7acEWwnoh4iOkUe+5wQ4qjM7HMALiKiHwL4qBBiu0z/

NoABAEZBEZegUdP8Dxax7eWjoedGkeDekcay9VsCBUWYjt2EqROzbTxhl2YvplmMGnH5O5LySAWP7yzjqnN K2LrviFUDt9mFME8UWk7b3Qx1L6oq0/

SuXL083pnTsvVbrN09VVswdYZBQkl3I7TR2atzgkbT3sVgUXDpXu7Pq82MyqQNUM/

PP2NJurjW+84n6aiDZh66vKm1KTbXcE1SQSEAPEtEAsDfCSHuA3CyEOKw/

P0XAE6Wn0sAvL6eh2SaKf1QQHpqBIUU1xFlhO4nbCSpdOxxGqCNmiAM2+msreuhrmPauu+l9YgsTFVjlwyTqkcAYGaxMCUf73pUVGEdW9BztFl9rWtvNuE+bl3OajGY/

7phuDSc+vMaJtiLhTzOP2u2VUwkr0vv+WfNDgy6N2NaHu8EOE70FAuYMb1ritpu3aa9eOf4WN0xl0jdFwVd G/WuTYk7Y0hCUkHxe0KIMhH9FoDniGif90chhJBCJFWl6GYANwPAvHnuXDtNL8Dd18TbGMQm0Feppxg4Crdtg ElHGLbCxtb1UPccyyMVnL766VBh5jXqKhVCT4RInOoaQZ2xMijaxgOqjk+N4+PtgEwdmy4wnPd5685VC7tM 2Ap4Ux69ZbElzp7zQWFQbIWoUrGp57lh8/5ltgtAb4gu5HMoFjDlGa67PDjQZJBGQM3OVm7cpbXnRA3dEbQ 2pZHClpGgEEKU5f9vEtE/

AjgXwC+J6BQhxGGpWnpTHl4G4HXhOVWmlXFCVaXSfyjTTw04Pigf9wG4D6jZKJKUyYvuBdBNAcMYHC6HCg n vpiemDskVulmL+IO/Bxk9TYLUO7o3dSRejxNgauP3v5hKhaBeXFt0Qq17WpexM/ITNNoETjyLuKq/MDWUjReLrYAPm8FEnSHYxqPyz4ps8hpkhFchz8sjFdz+5N5IQf8ltTalK+NblWo9+mtQvmzVbN6Fhbc9sQdDrx3F1n1HUB6pTFmUuOrR3ZFih6XRD4QRW1AQ0QwAOSHEb+TnCwHcAWATgBsBrJf/f0+esgnA54joYdSM2W9JYbIZwP8kol553IUAbhNCHCWit4loKWrG7E8B+N9x8xsH3Uuv9MNRCRv5eEecK0P

f0+esgnA54joYdSM2W9JYbIZwP8kol553IUAbhNCHCWit4loKWrG7E8B+N9x8xsH3Uuv9MNRCRv5eEecK0P 0/i4lm7WE/

W6yZXgbsU1Homv8SQSmVwiabA5BHWzUEXKOqO6H77+W6hSXrd8Sqg5M6sViM5tUv9/6yO5AG0hU18qBvh

KG Xjtq3P+jkKfA7TltOjvvoMW/j0bU6MjK6yzKrpZe4rx/ler4pAGi/

wnF8TBs9DarSWYUJwP4x5rXK7oAfFcl8U9E9DyAR4joJgCvAbhGHv8Mah5PB1Bzj/

0TAJAC4UsAnpfH3aEM2wA+gxPusd9HSoZsHXH1/bpRepj/

vVdfH9V9NA5hnXDY77admv85hhmKw9KAmtDydsx+bD1x/

ziACsHfrtaXR0SRiCwohxM8BLA5I/zWAjwekCwCf1VzrfgD3B6QPAfh3cfMYFdNuVCoOv1r8Y7u/

gbdT0DUyv5eTzqBVyBFGj49Z6fVtCFv0FvZ7lE7N7+1lKwRNL6ZJV2ujljB1DDpj58l578feN34TeG1Xs6JGeLGo+6i8JRFKNs/av1AsDqaBlrJZeMuhs/

nM8cx4bcru7xcKeWrYvuK2tpy04f0oJCYjlVfP6PX91y1o0nUKOl349Uvn1c/

XjYS7CzIUJ0R9qu3CqKXrhGcWC1i2fot2FOTt0ON0alHUKya1lamzDZua54m0lRgAvbEzbMFk1FlRs7xYXG KjBtGNgKN49oU5CgR50JnamU3bDeoXCjmKtClY2J4wuv1NlNs1kP4MMwwWFJKwUZEKDeyfXvs7K9Mo3GYU o 8vHe2NCe++wa+ol6oQLOcl7x8e03hcuRjNRZyIAQtdq+AlTEYwLgcd3ltF/

2qxlqiZsHBl1VmQi8F0tqAq6blzPOi82LqxBbSbq/

XV7fRfyFHj9JDMmkwu7iqnVPa1Lq55UrrS6xaV+z62wfDZ7IMFboUpsV+wG4d16UadWsV3FGScffn1slAV2awb3TAoPclIhp/XsibPvryuiPldbG4Xu/

DgrgnXP3SYvUcqRZBW1l6Rt1ZRHf0cYlNc49x8cLk9ylzWFiYmLTX2pbWFt6yYtYe8S3grVgrhGKnWulqnXii4fulAOaiMYL1G8grxGyHEhtEKCgMThCplQ9bkmMaDr7mdSlZg6RJt1Erp8pOkmnXR9iyLuyD1qYEh1ryTltumwbTdTimujc00jhBALComtL7gfwuSNUplaCHUdoi64WRJf+CihF5q9Z0ec5xrXgK673/lnzcbGHx+cpPoo5AqbPqlffOl/

iXW6bV0+4nSmtiRZ3+InTkfYCM8+L7agriir6xvleKDDlfowDBYUkqCFPUThftoCmKLrTtJ4TB1i/

2mzpqSbPDvCsO1smuFIEUSS5xpnphfk5rrxed+Og4aNTIJe4kKOpnjNmPKRZmeaZH2LCxoV+VRhOzuLs7q+Cappacition and the properties of t

WTRqYS4LCg9BHZGNrtp1xeg6RF163JfNtPLca4zL0osRFxeuoKbNlmxddKsTltLzTbMzTaqec33/

tNuaSdXmxUVgzUaR5ozTCwuKEGxVUo1eKall8rKZVp5n7YVwQVI1QdSX0hQmYtfaC63umXZnmkQ95/

r+aWNax+RdvNloAZaERqnvWFCE4G80ur0XmqnDj/uytdlLkQV0L6U/fEfY8XFCZDSiThqtCmo0q5YH7/

Wgwnr43VFb4T1oVJ2xoLDA22h07opZf5nCgv+1Cs10M9TNLnXhuVut440ycGgFd08/

A30I7XqcJHtTxMXFM2zUYI8FRURacRTeKM+ltGl2OdQ9goLpBdmpWrGt2Awcml0PSTC5mTcSl8+wEYM9FhQ xaLVReKM8l9lmC+UY6lsW2bfV2ooNWaiHuOgCF5oCGqZBqz1DFhQdQKM8l9LGVTmSTvkb7f+fFNdqolZuT7 ptU0sNrrtWe4a5ZmeASR9dB5bVjk2Hi3KoKX9ZuoOqKf/

gcOCeWIGsWr4AxUJ+UlpWbQ8uyuunldtTVuqu1Z4hC4oOICsvR1JclMM05bdloK+Eu65chFJPEYTaaDSLPvaAm/L6aeX2lJW6a7VnyKqnDqAVjapBuCiHqyl/

q9ge0lBxtHp7ykLdtdozZEHRIWTh5XBB0nK0mn0hKWmVt13aUzNppWflqiemo2i1KX9SOq28TDrwjlLpKJo55W/

GIrVWU3Ew2YQ3LmKYBpDmBkQM4wLeuKiDacVQC+1Iqy2wYhgvLCjamFYOtdBuuPY+4gEA00jYmN3GpOFDz8

TD5QKrNBbRMYwJFhRtTKuFCWhnXHof8QCAaTQsKNqYVgsT0M64XBHMAwCm0bCNoo1ptf0Q2h1XC6w6bdFa0

3x4RtHGZCWuDeMWXkTHNBqeUbQ5rRQmgLGDF9ExjYYFBcO0IDwAcAu7G5thQcEwTEfD643CYRsFwzAdDbsbh5P5GQURXQTgKwDyAP5eCLHe9T2u/8aPsO3lo64vyzBMC1MeqWD+6qebnY1YvLr+UqfXy/SMgojyAL4G4GIAZwO4jojOdnkPFhIMw7QbrgVcpgUFgHMBHBBC/

FwlcRzAwwCucHkDFhlMwzBmsi4oSgAOer4fkmmTlKKbiWililaOHDnSsMwxDMN0AlkXFFYIIe4TQvQLlfpn z57d7OwwDM00FVkXFGUAcz3fT5Vpzlh2xiyXl2MYhmk7si4ongdwJhGdTkTTAFwLYJPLGzz46Y+ysGAYpq1 w7fWUafdYlcQYEX0OwGbU3GPvF0LsdX2fBz/

9UdeXZBiGaRsyLSgAQAjxDIBnmp0PhmGYTiXrqieGYRimybCgYBiGYYywoGAYhmGMsKBgGIZhjJAQotl5cA oRHQHwWszTPwTgVw6z0wpwmTsDLnNnkKTMpwkhAlcst52gSAIRDQkh+pudj0bCZe4MuMydQVplZtUTwzAM Y

4QFBcMwDGOEBcVk7mt2BpoAl7kz4DJ3BqmUmW0UDMMwjBGeUTAMwzBGWFAwDMMwRlhQSljoliLaT0QH iGh1 s/

MTFyKaS0RbiehFltpLRJ+X6bOl6Dkiekn+3yvTiYi+Ksv9AhF9xHOtG+XxLxHRjc0qky1ElCeiYSJ6Sn4/nYh2yLJtlKHqQUTT5fcD8vf5nmvcJtP3E9Hy5pTEDiLqlaLHiGgfEf2MiD7a7vVMRCtlu/4pET1ERCe1Wz0T0f1E9CYR/dST5qxeieqcltojz/

kqEVFopoQQHf+HWgjzlwF8GMA0ALsBnN3sfMUsyykAPil/vx/Avwl4G8BfA1gt01cD+Cv5+RIA 3wdAAJYC2CHTZwH4ufy/V37ubXb5Qsr+BQDfBfCU/P4IqGvl578F8F/

k588A+Fv5+VoAG+Xns2XdTwdwumwT+WaXy1DeBwD8Z/l5GoCedq5n1LZBfgVA0VO/

f9xu9QzgPwD4ClCfetKc1SuAH8tjSZ57cWiemv1QsvAH4KMANnu+3wbgtmbny1HZvgfgDwDsB3CKTDsFwH75+e8AXOc5fr/8/ToAf+dJn3Rc1v5Q2/3wBwAuAPCUfAl+BaDLX8eo7W/yUfm5Sx5H/

```
nr3Hpe1PwAzZadJvvS2rWcpKA7Kzq9L1vPydqxnAPN9gsJJvcrf9nnSJx2n+2PVUw3VABWHZFpLI6fafQB2
ADhZCHFY/vQLACfLz7qvt9ozuRfAfwcwlb9/
EMCIEGJMfvfmv142+ftb8vhWKvPpAl4A+L9S3fb3RDQDbVzPQogygP8F4HUAh1Grt51o73pWuKrXkvzsTzf
CggJNIaL3AXgcwC1CiLe9v4naUKJt/
KKJ6A8BvCmE2NnsvDSQLtTUE18XQvQBeAc1IUSdNgznXgBXoCYk5wCYAeCipmaqCTSjXllQ1CgDmOv5fqp
M a0mlqlCakHhQCPGETP4lEZ0ifz8FwJsyXVf2VnomywBcTkSvAngYNfXTVwD0EJHaxdGb/
3rZ5O8zAfwarVXmQwAOCSF2yO+PoSY42rmefx/AK0KII0KIKoAnUKv7dq5nhat6LcvP/nQiLChqPA/
qTOk9MQ01w9emJucpFtKD4ZsAfiaE+LLnp00AlOfDjajZLIT6p6T3xFIAb8kp7mYAFxJRrxzJXSjTMocQ4j
YhxKlCiPmo1d0WlcT1ALYCuFoe5i+zehZXy+OFTL9WesucDuBM1Ax/
mUMI8QsAB4logUz6OIAX0cb1jJrKaSkRdct2rsrctvXswUm9yt/
eJqKl8hl+ynMtPc022mTlDzXvgX9FzQPiz5udnwTl+D3UpqUvANgl/y5BTTf7AwAvAfh/
AGbJ4wnA12S59wDo91zrPwE4IP/+pNllsyz/x3DC6+nDqHUABwA8CmC6TD9Jfj8gf/+w5/w/
I89iPyy8QZpc1iUAhmRdD6Lm3dLW9QzqdqD7APwUwD+q5rnUVyUM4CHUbDBV1GaON7msVwD98vm9DOD/
wOcQEfTHITwYhmEYI6x6YhiGYYywoGAYhmGMsKBgGIZhjLCgYBiGYYywoGAYhmGMsKBgGIZhjLCgYBiGYY
z 8f/GBltohlT2oAAAAAEIFTkSuQmCC\n"
"metadata": {
"needs_background": "light"
"cell type": "code",
"source": [
"sns.stripplot(y=df['Balance'])"
],
"metadata": {
"colab": {
"base uri": "https://localhost:8080/",
"height": 269
"id": "7JZmnrl1Upkl",
"outputId": "31092dff-8f48-4b5b-c629-2262bd6fdc21"
},
"execution count": "null",
"outputs": [
"output type": "execute result",
"data": {
"text/plain": [
"<matplotlib.axes. subplots.AxesSubplot at 0x7fed290c8790>" ]
},
"metadata": {},
"execution count": 15
},
"output type": "display data",
"data": {
"text/plain": [
"<Figure size 432x288 with 1 Axes>"
],
"image/png":
"iVBORw0KGgoAAAANSUhEUgAAAZcAAADrCAYAAACI8dsDAAAABHNCSVQICAgIfAhkiAAAAAIwSFIzAAAL
Eg AACxIB0t1+/
```

```
AAAADh0RVh0U29mdHdhcmUAbWF0cGxvdGxpYiB2ZXJzaW9uMy4yLjIsIGh0dHA6Ly9tYXRwbG90bGliLm9y Zy+WH4yJAAAgAEIEQVR4nO3dd3jV5fn48fd9TvZOyIKEkABhb0JAwa2lq7hL/bmp2qqttnbZZbWt0mWrbV39OlurUrV1iwwVVBACyF5hJkBIIIGE7PH8/jifhLNzAgknCffrunLlnOez7nCRc+fZYoxBKaWU6ky2YAegIFKq99HkopRSqtNpcIFKKdXpNLkopZTqdJpcIFJKdTpNLkoppTpdSLAD6C6Sk5NNdnZ2sMNQSqkeZeXKIQeNMSnu5ZpcLNnZ2RQUFAQ7DKWU6IFEZLe3c
```

WU0op1ek0uSillOp0mlyUUkp1Ok0uSimlOp0mF6WUUp2uy5KLiPQXkY9FZKOlbBCRe6zyX4nlXhH5yvq62Oma+0WkUES2iMiFTuUzrLJCEfmJU3mOiHxplb8mlmFWebj1vtA6nt1VP6dSvdH2sqN8f+5X3Pz8ct5Zsy/Y4ageqCuHljcB9xljVollLLBSROZbx/

5sjPmj88kiMgKYBYwE+gELRGSIdfjvwAVAMbBCRN42xmwEfmfd61UReQqYDTxpfa8wxgwWkVnWeV/vwp9VqV6jtqGZrz+9jINH6wH4ZEsZ4SE2po9MD3JkqifpspqLMWa/

MWaV9boK2ARk+LlkJvCqMabeGLMTKATyra9CY8wOY0wD8CowU0QEOBd43br+ReByp3u9aL1+HTjPOl8p1Y

IOw61JZZW767dH6RoVE91UvpcrGap8cCXVtHdIrJWRJ4TkUSrLAMocrqs2CrzVd4HOGyMaXIrd7mXdfyIdb 57XLeLSIGIFJSVIZ3Qz6hUb5GRGBIQmVL+dHIyEZEY4A3gXmNMJY5mq0HAOGA/8KeujsEXY8wzxpg8Y0xeSorH6gVKnZKGpMXyzWk5tNb1h6U73ivVEV26/IulhOJILC8bY94EMMYccDr+D+Bd6+1eoL/T5ZIWGT7KDwEJIhJi1U6cz2+9V7GIhADx1vIKqQD8/NIR3Dw1m4rqRkZlxKGtyqqjunK0mADPApuMMY86lfd1Ou0KYL31+m1gljXSKwfIBZYDK4Bca2RYGI5O/7eNMQb4GLjauv4m4C2ne91kvb4aWGSdr5QKUGZiFKMz4zWxqOPSITWXqcANwDoR+coq+ynwDREZBxhgF3AH gDFmg4jMBTbiGGl2lzGmGUBE7gbmAXbgOWPMBut+PwZeFZHfAKtxJDOs7/8UkUKgHEdCUkopdZKI/kHvkJeXZ3RVZKWU6hgRWWmMyXMv1xn6SimIOp3u56LUSXbwaD0PvbORlbsrGJ+VwAOXjSQINjzYYSnVqT

ej1tSzaXArA3sO1VNc38fwt+UGOSqnOpc1iSp1kS7a5TthdvO1gkCJRqutoclHqJBveN87tfWyQllGq62hyUeoke+TK0QxMjgZgYHl0c64cE+SllOp82uei1Ek2sl88C+87i/

LqBpKiw3SSouqVNLkoFQQiQp8YHSGmei9tFINKKdXpNLkopZTqdJpclFJKdTpNLkoppTqdJhellFKdTpOLUp2spcWwuaSSI7WNwQ5FqaDRochKdaJdB6u5+fnl7DpUQ0SojYe+NoprJ/Vv/

8lg+3D9fj7depBh6bHMyu9Pelg92CGpHk6Ti1Kd6A8fbWHXoRoA6hpb+NU7G7h4TF9iwrvvr9rzn+/

kwXc2tr1fsaucv103IYgRqd5Am8WU6kR7rMTSqqahmbKq+iBFE5h/f7nH5f376/

ZzpEab9NSJ0eSiVCeaMSrd5f2w9FhyrHXEuqvYCNdaVViljdAQXZJGnZjuW1dXqgf61lmDslkwf2MJA1Ni+P4FQ7rsWSt2lVNZ28jUwclEhB5/H8m95w/hmy8V0NDUAsB3zs0lKkw/

GtSJEWNMsGPoFvLy8kxBQUGww1CqXcYYbntpJQs2HQAgMzGSN799OqlxEcd9z5ljdSzbcYih6bEeWwlo5Y+IrDTG5LmXa7OYUj3MlzvL2xlLQHFFLS8t3R3w9f9ctpupcxZx+iMLeeHznQCkx0dw+fgMTSyq02jdV6kTcLS+ic+2lZEWF8H4rESXY03NLbyyfA8rd1eQl53EN/KzsNtOvC/

jsJfO9rfX7KWsqp7bzxrloJQYn9eu3F3OL/

63vu39r97ZyPC+cUwe2Mfj3P8UFPHrdzdSVdfEGbnJPHXDRG0uUwHT/

ylKHaftZUe59qmlHKpuAODavEx+f/XYtuO/

fncjL1o1iv99tY+dB6v5xaUjTvi5Zw1JoW98BPuP1LWV7SmvZU95EQs2HeDTH53jMvT5ow0lPDp/K1V1TQxM8Rxc8OXOco/ksreihh+9vpbWRvPF2w7ywFsb+MM1Yz2uV8obTS5KdYAxhi93llPT0MR7a/

e3JRaAuQXF3H7mlAanOmoOrxUUuVz72vl9zJ6WQ2psOCH242+Rjgyz8+adp/

PCF7tYsPEA28uq244dqm5gydYyBqfG8PD7mygsq6a4vKYtSew9XOtxvzGZ8R5lrxUU494b+1nhweOOWZ16N LkoFaCWFsPNL6xg8dYyAKLCPEdoOS/5khAZRknjsdpFXVMLp89ZRGpsOI/

NGs9pgzybogLVNz6S+y8aTmSonb8s2OZyLDk2nFteWEFxhWciARiVEceugzUYY5h9xkDOHprqcc6w9FiPspw+3XtltepetENfqQBU1zexpPBgW2IBxwRJZ4NTY4iPPPb32hm5yS7Hm1ocdYHSqnp+9MYaOmOk5k2nZbskgqsnZhIXEeozsQDMmpTF2gems/ZXF/

ocKn3hyHRG9TvWuR8bEcKjX9cmMRU4rbko5cfOg9V855VVrN9bSVqc57bEF41KJzYilFV7KtheepTzH11Mfk4Sv7l8FG+sKvZ536LvWmobm4kKC6GhqYV/f7mbdXsrOX1QH66cklGl747/

DfuO8Nv3NrH7UA0zRqXzvzunsmH/EeljQxmcGkt1fRPRYXaqnZJfqF0wBq6ckMHXJ/

WnvqmFJdvK6BMTxsQBSR7PsNuEd74zjRW7KqhtbOb0QX0IPYGmPHXq0eSilB8/fXMd6/

dWAnCgsh67TWi2aiBhdhvfPnsQP31zHYWIR9uuWb6znKc+3U6Ln4pJfk5S28ir+99c15al3lhVzN7DtXz3vNy2c2samthRVk1uWgw2EW59YQUHKh1Lyjz72U5iwkP4nlMNJDo8hDlXjea+uWtoaHYEMTkniSf+30TilkMprqjh6ieXUlLpaLK7ZExf/u5lLTERIT/HM/EoFQhNLkr5sX7fEZf3zS2G2dNygG1sZtak/

pRXN7B+X6XHdS0thqgwu0vT2eScJMqq6hmSFktNQxPDfvEBQ1JjPZ7x6vl9bcnlky2lfOeV1VTVNdEnOoz7Lx7ellhaLdlW5pJcAGliQtsSC8BnhYf4cH0JozPj+dHra9oSC8B7a/dz+xmHGds/oYP/

Okr5pslFKT9OH9SHeRuOTViclJ3oMpz4vbX7vV534cg0rp3Un99/uIVD1fVcPaE/

3z1vMCLCva+u5sMNjpFXa/cewX3qS1xkaNvrn/9vPVV1TYBjJNhzn+/

0aPKgrG2ktgGZSKcBBu4LaAls31XOz/

+3nobmFo9juveM6mxd1ogqlv1F5GMR2SgiG0TkHqs8SUTmi8g263uiVS4i8rilFIrlWhGZ4HSvm6zzt4nlTU7lE0VknXXN42l1VPt6hlld9fAVo7l4dDp9osM4d1gqf5k13uX4OcNSiAj1/DWKCg/l9EHJ/

O+ugSz50bncc35uWz/Kil0VLue6N58IRDmSS1NzC/

vchg7vPITNry8f5ZKQCsuqGfvgPKY8vJC5KxzDn88dlkpYyLG4bAKVtQ1eE8uAPIFM8TKJUqkT0ZU9dE3AfcaYEcAU4C4RGQH8BFhojMkFFlrvAS4Ccq2v24EnwZEogAeAyUA+8IBTsngSuM3puhlWua9nKNUhCVFhPD5rPCt/

cQHP3TyJjIRII+NRYSHMmpTIUibif9ju+CzX5qcQt6rLsh3llFXWE2K3cf7wNJdj1fXNPPD2Bo+E1NBsKKms48dvrmXbgSr6J0Xx0q35nDsslWmDk3nmhjwyEqM8YrlifAZXjc/kwr8s5pLHl/

DRhhKfcSvVEV2WXIwx+40xq6zXVcAmIAOYCbxonfYicLn1eibwknFYBiSISF/

gQmC+MabcGFMBzAdmWMfijDHLjGNM50tu9/

L2DKUC9uf5Wxn9q3mMefAjHv1oCwBriw8zb0MJ1fVNbed97/

whTBzg+HsnzG7jB9OHktXH84O81S8vHUFi1LGmr2YvPf+Ltjia4v547VhunZpDmNNIraq6Juw+BpMZAyt3O2pGUwb24bmbJ/Gvb07m/

BFp3Hx6NknRYW3nnpGbzFIDknl0wVZ2Hqxmw75K7nx5FUXlnk1qSnXUSelzEZFsYDzwJZBmjGltqC4BWv80 ywCcpzQXW2X+you9lOPnGUoFZMm2Mh5beGxy4uOLCllbflRPrHkuyTFhzL3jNAamxBBiFy4YkUZ6bAQXjEz j8vEZbC87ypKtZeSmxTJ1sOt8I+1I1VQ4rQ/

mb7ZLXEQoP714GC98sdOIPDzUTqjd5rWvxNf+MQP6RPPxfWczf9MBkqJDyRuQRP7DC1zOaWoxLN1+iP5JvpOjUoHo8uQiljHAG8C9xphK5/H7xhqjll265r+/

Z4jI7Tia4MjKyvJ2ijpFrS0+4lH2idMEyoNHG3j60x387uox3PHPIW1Lo7y3fj9rig/

zz6W72vZN3jo1h19edmwQQE1DE+6EY0mmX3wEM0b1bTsWYrdx4ch0Plh/

rMlq5rh+nDssldteWulxr799XOh1IUqA+KhQrp6YCcDcgj3UNXr2wYzopysjqxPXpclFREJxJJaXjTFvWsU

HRKSvMWa/1bRVapXvBfo7XZ5ple0FznYr/8Qqz/Ryvr9nuDDGPAM8A479XI7rh1S90pSB7c/

vqKhpoKi8xmPNrbkFRW2JBeClpbu457xc3l23j+c/30VDUzPuDHDJ6L6M7R/

PVRMyiXcaMQbwh2vGkpUUxeqiw0zJSeLOcwYTardx0SjXpAOwZNtBGppaXDr0vamu94wjMtTOqAzHWmPby46ypaSK/JwkkmM8J5Aq5U9XjhYT4FlgkzHmUadDbwOtI75uAt5yKr/

RGjU2BThiNW3NA6aLSKLVkT8dmGcdqxSRKdazbnS7l7dnKBWQiQOSuOPMgX7PuTavP9HhIR4d8k1uI7JajOHzwjJ+9t/1FJYeZU+596VZctNiuP3MQfSJCaemoYmVuyuoqnM0e8WEh3D/xcOZe8dpfH/

6UCJC7dhtwpPXT/SoaeQkR7ebWAC+Pqm/x3nX5Dn+XvvH4h2c96dPufPIVUz67QLu/

vcq6ho9k5FSvnRlzWUqcAOwTkS+ssp+CswB5orlbGA3cK117H3gYqAQqAFuATDGIIvIr4EV1nkPGWPKrdd3 Ai8AkcAH1hd+nqFUwM4dlsrTi3e4lA1Pj2VURjxfG9ePM3JTALj9zIE88cn2tnPqm1wrwZePy2DNXs9mNmc 2oW1k2BOfFPLn+VtpbHZMxPzrN8aTmxpLdUMjNQ3NjOgb7zKn5Y9Xj+WOfxVQVF5Lamw4c64c3XbMGMN/VhazZNtBhqXHcuvUnLZro8JCeO+70/jhf9ZScqSOC4an8qMLh1HX2MyfF2x1uge8u3Y/CVGh/ObyY/dWyh/d5tii2xwrdy0thpl//5x1VmIItQtz7zjNY1MwgPP+9InL0vetBqVE8+E9Z/D+

+hLuefUrj+MAiVGhXDE+g1umZrNhXyXf+tcqI+MRoTaXvpHIUBuTspMYl5XIjVOyeOjdTSzYdID+iVHcOi2bt9fsY//hOi4b248Qu/Cnj44ligtHpvH0Da470tY1NnPf3DV8sH4/0eEhfOfcwTzy/maPgQapseEs/9n5fv/N1KnH1zbHmlwsmlyUN/

sO13LNU0vb9kGJiwjh2kn9iY8MZbE1Guze83O55sml7PYxhHdUvzgiQm0crm1yWYPMm9TYMEqrGvye4yw8x EZ907HEI+KoabRKig6jvNr1fkvvP5e+8ZEUlh7FGMPCzaXM+WBzu8+anJPEa3ecFnBs6tTgK7no8i9K+fHG ymKXDbYq65r4vyXHhgWv2FXBpv2VXJOXyR+dagjOvK095ktHEgvgkljANbEAXgcP3Pr8CpqNYesBR6JLjQ2 ss97bqtBK+aJraCvlR1FF+xMKV+85zKM+EsvxcJ4gmRQV6vvEACRGel6/qaSqLbGAY3+ZQLyzdr9OsFQB0+SilB/

ul8F88ZwtcvxaFzOeNjiZOreaSWg78USFuu6OWXS4zseZrkb0jfW6RpozY3SBSxU4TS5K+fDljkP8e3IR+ycGKCLExpC0GAJLV44962vddrtsNsbvL23NcQ4X3rS/yuuESmdRYTb8ryeg1DGaXJTyorG5hV++td6j3AacNSTluO45NTeZqydkdujjOd2tn6PFdG4tqVUgMdU0tHDrCwU0ellZWSl3mlyU8uLBdzaw5YDnyK

4W4FtnDeLS0ek+r/W1Q/GiTaUs31Xu/aAP+vvrmTg4D2fkJrd/

coD6xkcQG3F8Y3lKq+rZvL+q02JRvZcmF6W8eGPlXp/H7vhnAe+u8700va/R/

QZYvvNQwP04rdYWH+G3V4wi1NdSyB0wlCmSvvERbRuQdVRkqJ0BybqopWqfJhelvlqOt/

s8VnmcH8yOa5t5++6p5Od437/O2y9kVV0TM/68mEvH9CM3NYbkmDASvIwCC8Tu8lpW7TncoWtal/

uPDrMz56rRxEWc2Ag2dWrQ5KKUF/YO1i46omBXBSPS4zy2N44MFV6anU+al3knNY0t/

Hf1Xv5wzRj+e+dUPrj3DFJiwjzO6wqtu1dWNzSzSZvEVIB0hr5FZ+irVkfrmxj1wLygPT8+MoQjtd5rR85Lwdht4nWjsa4UYoOVP59O/AnOv1G9h68Z+lpzUcpNVKidvvERQXu+r8QCuAwXPtmJBaCp5VhNRil/

NLko5cZmEx65cjSR7UwqbOVrdFhvNDYznpQAl4tRpzZNLkp5cfbQVP5925SAJjyeSi3Lt7Wzx41SrTS5KOX D+KxE/

nDNWLL7RB336KzeJCLU1qnzbVTvpslFKR+e+nQ7f5i3GRHh+ilZwQ4n6OoaW3jwnY3BDkP1EJpclPLijZVF

zPlgMwcq69l5sJq/fby9/YtOAe+v3R/sEFQPoclFKS/

+snBbsEPolpy3V1bKH00uSnlRciSwpepPNfZTaWicOiGaXJTyoqn5FBoC1gHVDce3pL869WhyUcqLKG3+8WpyTlKwQ1A9hCYXpbwY2z8h2CF0T6l1OhUYTS5KeVFYqgs0erN8Z0WwQ1A9hCYXpdzUNDRRWtUQ7DC6pRrtc 1EB0uSilJvHFugwZF86utGZOnVpclHKzcrdHduK+FRi108MFSD9r6KUmyFpscEOoduKCNFRdCowmlyUcnPL1Jxgh9BthYXoR4YKjP5PUcpNblosZ+rqv15FaHJRAdL/

KUq5aWpuYcUuHXLrzV5dFkcFSJOLUm4+KzxIbaMOufUmCDsrqx6qy5KLiDwnIqUist6p7FcisldEvrK+LnY6dr+IFIrIFhG50Kl8hIVWKCI/

cSrPEZEvrfLXRCTMKg+33hdax7O76mdU6lR0oFJrL6p9XVlzeQGY4aX8z8aYcdbX+wAiMgKYBYy0rnlCROwiYgf+DlwEjAC+YZ0L8DvrXoOBCmC2VT4bqLDK/2ydp1TApg3W/hZ/

kqLDgh2C6gG6LLkYYxYDgU4YmAm8aoypN8bsBAqBfOur0BizwxjTALwKzBQRAc4FXreufxG43OleL1qvXwfOs85XKiAl+pe5TzaBUJ3sogIQjP8ld4vIWqvZLNEqywCKnM4ptsp8lfcBDhtjmtzKXe5lHT9ine9BRG4XkQIRKSgrKzvxn0z1CtFhlcEOodtqMVBT3xjsMFQPcLKTy5PAIGAcsB/

400I+vgtjzDPGmDxjTF5KSkowQ1HdSI125vv13jrd6li1L+DkIiLTROQW63WKiHR4ppkx5oAxptkY0wL8A0ezF8BeoL/TqZIWma/yQ0CCiIS4Ibvcyzoeb52vVECSorRPwZ9cXcFABSCg5CliDwA/

Bu63ikKBf3X0YSLS1+ntFUDrSLK3gVnWSK8cIBdYDqwAcq2RYWE4Ov3fNsYY4GPgauv6m4C3nO51k/X6amCRdb5SAVm8VZtI/Tlco81iqn2BNi5fAYwHVgEYY/aJiN8/

X0TkFeBsIFIEioEHgLNFZBxggF3AHdb9NojlXGAj0ATcZYxptu5zNzAPsAPPGWM2WI/4MfCqiPwGWA08a5U/C/

xTRApxDCiYFeDPqJSDbojlV9/4yGCHoHqAQJNLgzHGiDh+60Qkur0LjDHf8FL8rJey1vN/C/zWS/n7wPteyndwrFnNubwOuKa9+JTyZW3xkWCH0G2F2WFoujaLqfYF2ucyV0SextHPcRuwAEefiVK9TpNOQ/epsRm0lVkFlqDkYoz5l445l28AQ4FfGmP+2pWBKRUssyZlBTuEbsugNTsVmlCaxaxO9iXGmPnW+0gRyTbG7OrK4JQKhpzkaKLDbFQ3tAQ7lG6psk479FX7Am0W+w/g/

JvWbJUp1evUNzVrYvFjfFZi+yepU16gySXEWn4FAOu1TgZQvdlrX+4JdgjdWky4rmCg2hdocikTka+1vhGR mcDBrglJqeD6fLvOuVXqRAX6J8i3gJdF5G+A4Fi768Yui0qpIEqPDQ92CEr1eAEIF2PMdmCKiMRY7492aVR KBVFdk/a3+FNcUUNmYlSww1DdXKCjxcKBq4BslKR1BXtjzENdFplSQdl/SWeg+1OvyVcFINBmsbdwLF2/EqivunCUCj5dmNG/

gcntLtChVMDJJdMY421XSaV6nX2Ha4MdQre2fm8lozPjgx2G6uYCHS32hYiM7tJllOom6hp0Pxd/ EqJCgx2C6gECrbIMA24WkZ04msUEMMaYMV0WmVJBMmGAThL0p3+Sduar9gWaXC7q0iiU6kZ0vxLf7BLsCF R PEehQ5N0AlpIKRHRpREoFWYrOc/

EpSmfngwAFuhPI10RkG7AT+BTHRl8fdGFcSgXNroM1wQ6h2zpa10Rjsw5FVu0LtEP/

18AUYKsxJgc4D1jWZVEpFUQRYYH+Wpx6dCcXFahAf4sajTGHAJul2lwxHwN5XRiXUkEzVOe5+LV4a2mwQ1A

9QKDJ5bC19MtiHGuMPQZUd11YSgVPqva5+LV6z+Fgh6B6gECTy0ygFvge8CGwHbisq4JSKpg+XF8S7BC6td nTBgY7BNUDBDpazLmW8mlXxaJUt/D5dt1NwpcZl9NljNatnFT7/NZcRKRKRCq9fFWJSOXJClKpkyk/OynYlXRb4aH2Ylegegi/

NRdjjPZsqlNOWpxO5fJI+U7dSE0FpkMzotwnURpjdD9Y1esM7xcX7BC6rSO6eoEKkE6iVMqNboTlW01jCw26n4sKgE6iVMpNaVVdsEPotqLDblTqAmMqADqJUik3K3aWBzuEbisy1E7rTrRK+RNon4v7JMpSdBKl6qXeWbs/2CF0WzW6140KUEcmUdagkyjVKSC7j/

a5+KS1FhWggJKLMabaGNNijGkC3gP+ajWTKdXr3DJ1QLBD6LZqGprZXnY02GGoHqC9SZRTROQTEXITRMa Ly HpgPXBARGa0c+1zllJqXdNaliQi80Vkm/U90SoXEXlcRApFZK2ITHC65ibr/

G0icpNT+UQRWWdd87hYDcG+ngFUoF5agiPs/amubwp2CKoHaK/

m8jfgYeAVYBHwTWNMOnAm8Eg7174AuCegnwALjTG5wELrP

Th2usy1vm4HngRHogAeACYD+cADTsniSeA2p+tmtPMMpQKytaQq2CF0a2uLjwQ7BNUDtJdcQowxHxlj/gOUGGOWARhjNrd3Y2PMYsB92M1Mjq1N9iJwuVP5S8ZhGZAgln2BC4H5xphyY0wFMB+YYR2LM8YsM8YY4CW3 e3l7hllBsdm0X8GfMh2qrQLQXnJxni1V63bsePYNSjPGtA7FKQHSrNcZQJHTecVWmb/yYi/l/pschVEDgC2WSaDLz\_lmLFQwTVA7SYXMa2LQ\_iiJFcwBl/fSlDtmaxYbgyYYydF\_IJJbDaDABARKyag6MbTVgwy

p6hVEDqG3WSoD+zJmUFOwTVA7SXXMa2LIQJjHFeuBIYfSIPtmocXbqxXXvPEJHbRaRARArKysq6MhTVgwx J iwl2CN1a34TIYlegegC/ycUYYzfGxBljYo0xldbr1vehx/

G8A1aTFtb31i3t9gL9nc7LtMr8lWd6Kff3DG8/3zPGmDxjTF5KSspx/DiqNxqVER/

sEJTq8U72ZuFvA60jvm4C3nlqv9EaNTYFOGI1bc0DpotlotWRPx2YZx2rtEazCXCj2728PUOpgHyxXUfZ+6 K9USpQHVoVuSNE5BXgbCBZRlpxjPqaA8wVkdnAbuBa6/

T3gYuBQhyTNW8BMMaUi8ivgRXWeQ8ZY10HCdyJY0RaJI5FNFsX0vT1DKUCkhKrm2H50qXt2KpXEUe3hMrL y zMFBQXBDkN1AyVHapnyyKJgh9Ft7ZpzSbBDUN2liKw0xnisNXmym8WU6vbS4yOJj+yySr1SpwRNLkq5mb/xAEdqdRa6UidCk4tSbl74YlewQ+i24iK0RqcCo8lFKTd948ODHUK3lRStgx1UYDS5KOXmhim6Krlvu8trdOFKFRBNLkq5qazTD09fjIGmZh1hqtqnyUUpN0N1+Ref7ALxUcezOlc61WhyUcrN85/

vDnYl3ZbWWVSgNLko5WZPeXWwQ+i2WjS7qABpclHKTVK0jhZT6kRpclHKzSWj04MdQrc1sl9csENQPYQmF6

XchIXagx1Ct/X8zZOCHYLqITS5KOVmRF/

969ybayZmkhoXEewwVA+hyUUpNxGhdhlidbitu20HqoldgupBNLko5cXEAQnBDqHb+ar4CDsP6kg6FRhNLkp5MaDPyZllGWrrWXs7NrW0BDsE1UNoclHKi/

5JJ6dvobGHTRwZkBQd7BBUD6HJRSkvjOlZNYqTlQfZg2cAABLjSURBVCrMTm1Dc7DDUD2EJhelvFi6/WCn3KeHtXr5VdPQzCMfbAp2GKqH0OSilJtlOw4xf1Npp9zLdEKrV4jAjJFpJ36jTrBiV3mwQ1A9hCYXpdyUHKnrtHt1Ro9Kk4HrJg9gcGrwV2ueOCAx2CGoHkKTi1JuUmM7d22xUPuJt419ufMgR2oaOyGaEzMxS5OLCowmF6XcHKjqvJoLQGMnbK7131X7KDta3wnRnJhPt5YFOwTVQ2hyUcrN1EHJhld0r1+No91ka+E4XblABah7/QYp1Q2kxkXwwi35RHSjBJPQDXZ/FIEfXjg02GGoHqL7/PYo1Y2cNqgP47K6xxlwNoE95bUduqYrRkB/Y1IWfWJ0rxsVGE0uSnnx8pe7Wbajewy7PZ5J/

J097z87KZlfaK1FdYAmF6W8eOHzXZ12r5AumEkZYhOiw1z3nbEJRIR0zazNlNgIkqLDuuTeqnfS5KKUF8kx nfNBmpEQQVMXrB/W1GKodluKpcXAkHTve9Ekx4S1m+T8HV2xu4lfv762o2GqU5gmF6W8+OGMYV4/jN1LYsN971ppA/Ye7txhzf6MyYznZxcPx9s4hOr6Jp9JbnJOEk/8vwn0i/ffn/

JaQRFF5TWdEao6BQQluYjlLhFZJyJfiUiBVZYkIvNFZJv1PdEqFxF5XEQKRWStiExwus9N1vnbROQmp/KJ1v0LrWt70QpP6mSYkJXlt88e5FFuc0o4oTbhT9eO4+bTs73e42QsTp8YFUqU1Ty2tvgIcz7czAu35HucV9voGU1seAgXjkwjJTac7aVHKalsfx5NjS5cqQIUEsRnn2OMcV4d8CfAQmPMHBH5ifX+x8BFQK71NRI4EpgslknAA0Aejv7LISLytjGmwjrnNuBL4H1gBvDByfmxVG+R3cdzefnmFkNcRAiPXDmaSdlJpMZFMH1kOjedns2izQf49buds7DjRSPTgGtqIT+nD3//

uNDnPJeMxEjW761se796z2GO1jfTLz6CfW7L2ITZhQZrQmdGQiSjM+P4cP0BAN5lf7sx2W3C0PTY4/2R1CmmOzWLzQRetF6/CFzuVP6ScVgGJIhIX+BCYL4xptxKKPOBGdaxOGPMMmOMAV5yupdSAbt0bF/6J0Z6lFfWNTFxQJLLfvl5ydGMyYwP+N7t/eJ9bVwGz9+Sz7fPHsRvLh/

p8zxvCbC6vonrTxvgUd7QbHjwayN44ZZJzLv3DBZs9L84Z5TbgIFbfNTQlPImWDUXA3wklgZ42hjzDJBmjGn986kEaF0GNgMocrq22CrzV17spVypDgkPsfPMjXlc9NgSl/KMhEhil+x8tq2MJz/dzpqiw/

SJDudXXxtBVJg9oKYjf138NoHxTmt4eTs3xAaTsvtgDISH2KhvcjR7pcWFc8HINAT447wtHsOYs/pEc/bQVFpaDPGRoRyqbvAag90m/P6qMVTWNfFVUQWTspO4emJmuz+XUq2ClVymGWP2ikgqMF9ENjsfNMYYK/F0KRG5HbgdlCsrq6sfp3qggl3lbR/eAgxMiWb2tlFMeWQRVXXHmqqO1tdw6wsF/PKy4Ty2sJDD7Swy6e0/t12EmlqQHpo5kvT4Y7WibQeOepwbFmJn6Y5DjutswpXiM8hMiuK6/

CzilkJZuOmAR2IJs9t4+L2NzH5hBUPSYpmYnchHGw543FuA1+84jfHWCsjXTdbfDdVxQWkWM8bstb6XAv8F80EDVpMW1vfWOvteoL/T5ZlWmb/yTC/l3uJ4xhiTZ4zJS0lJOdEfS/Uy+4/U8qt3NrbVCgwwY1Q6Ty/e7pJYWhngoXc20dzBocd2m5CZEMHl4zNYdN9ZzBznWtGeNjjZ4xrn2lFziyE2loTvXzCkLSkN8NJc1tDcwrbSaloMbC6pYqGXPWsEuGRM37bEotTxOunJRUSiRSS29TUwHVgPvA20jvi6CXjLev02cKM1amwKcMRqPpsHTBeRRGtk2XRgnnWsUkSmWKPEbnS6l1lBe21FkUei2FJSRXGF76VYDHhNPP40txiKD9fxxqpi7vvPGs8TBCJDHf0fNoHLx/X1OGXVnsMu7wenxnDPebl+l/v3lgQN8O7a/

S6bgq3eU8FTn27ni07anVOdGoJRc0kDPhORNcBy4D1jzIfAHOACEdkGnG+9B8dorx1AlfAP4E4AY0w58GtghtX1kFWGdc7/WddsR0eKqQ56fOE2/rJgm0f5OcNSmTEq/YTuHebnA/

+TLWXc9fJKl9Fhv3xrA7WNjppKi4EVuyo8rttSUulR9r0LhrDs/

vOYPtz7Lpb+Vn7esPcl4FgG54onvmDOB5u57h9f8teFnv8mSnlz0vtcjDE7gLFeyg8B53kpN8BdPu71HPCcl/I/ICYNQJB6tOWS9+scvlvQj8YPoQrsvPYua4DPrFR/

DiF7tpaO74bJarJmSyYHMpZVXe55W8t66EusYWnr15EgB7DrlOXCz1cp3Nx+z7PjHh3HvBEJbuOESVlbBsApkJkezxUwN7fFEhZw5J4YmPt7uUP714B3eeMxh7Fyxpo3qX7jQUWalulyLUbea9gRmj+ilixlSH8LNLRvDS7HwyEhxDlTMSlikzN4WEvPb/

Xntj9V4mZCXwp2vHMufK0V6brhZuLuVonWNQgHtNKS0uwmOl9K1Tc3w+b0S/OD7+4dn8/qoxvHRrPtsfvrjdfVnKqxv428eFtBjXpjP390r5EsxJlEp1W9fkZfCXBYVt7w3w948LmZCVyCvL95ASG05Eil3oMDvXT85i9hk5XPbXzwPa1KuhqYV5Gw6QHBPOb68YzY6DR3lm8U6P8+559SuevXkSj1w5mhCb8OZqx7gUb30+WUlRfp+ZHBPOtZOOjX8pqmh/GZc1RYcpdxuqfOvUHK21qlBoclHKTVVdl68sL/loX7mrgjdXeQ483Fp6lM0lVR6JJTEqlAo/

Q5ILrL6T718wIIWbStleVu1yfOHmUjbuq2REvziXCZvevLduP7PyAx8yPDA5mtVFR/

yes+NgNc4VIWsmZuqy+ypg2iymlJsP1pVwwMs6W4eqfa+9tb3Mcy5KewlhvLUZWUSoncdmjfd6TrFVw+gb7/9euw5WU1nnf26Ns59fOpJEt90t+8VHcP2ULC4enc7tZwzEvQWsdUi2UoHQ5KJUAGaMTCMqzHdFf2S/eCbnJLW9H9s/

gYevGNW2dH+ITZg9LYfc1BhsAucPT+MnFw1rO39URjx3ui2UmRQdxunWHJdr8jKZ6GfuSVFFLQ++vbHtfW1DM098Ush3XlnNfwo8a2ETBySy9P7zeP1bp/

HU9RN46voJLPrB2dwyNYfr8gdw89RslkJdPx68zbdRyhdtFlPKzeSBSR5ldpuN756Xy8//t97jWFilje1lR5k+lo3vnjcYu81GfnYSNpvw2Y/

PZU3RYXKSo9utyfxoxjBG9otnbkERiVGh3HnOYGLCHb+iUWEhvPHt07nz5QLeX+c5qx7g061lba/veXU1H210nPfOmn2UVtVz1zmDAcdcnQ/W76dfQiQzx/

```
UjPMQxeOGR9zfx9OIdAKTHRfCbmaN4adluyqsbuGZif67J0+VfVOA0uSjlxlun/
KHqeq6fMoBBKdF877Wv2panjw6zU93QzP4jdby4dDd2m41fXjai7bqIUDuTB/
YJ+NmXjOnLJWM8J0m2unhUP5/JZXhfx4rFR2oamb/
J9ZzXVxZz1zmDWbr9EDc8+2Xb3i7vrNnHP2dPpgi8hmeW7Gg7v6SyjuW7ynn77mkBx66UM00uSrkZnh7HoJ
Rolw72S8f0A+C0Qcks++n57DpYzcGj9Vz91FKXaz/dWgqMoKsMSfO+5P2w9Fge/
Jpj9eTwUBvRYSEuSbKPtUXxi1/
sctk0bMm2g2wuqaSuscWjj8XXPBylAqF9Lkq5sdmEf31zMtdNzuKM3GQeuXI0109xXcI+OzmaMZkJbR/
arYb52Ga4s3y8xXM9sIdmjuTDe89kYEoM4Kqt/WD6EFq3yIsKs3PfdMcoL2/
DiENsQm19E2mxrjtRXjlBm8HU8dOai1Je9l2P5OErRvs9JyzExh+vGcsPX1/LwaP1jOwXx/0XD/
N7TaBaWgxbDISRHhdBoIMCa/SyIsBbq/
eRGhvOjFHHmtNunprDucPS2FxSSX5OEglRjnvcOi2HBZsOtl38mj4ijWc/
29k29DrEJkzOSeKG0wa43E+pjhKjM24ByMvLMwUFBcEOQ3UThaVHeWNVMTHhIXx9Un/
qm1r46ZvrWL2ngvycJH57xWjSrA76xuYWKmoaSl3132EfgOKKGm58djk7DJYTZrfx04uHcbM1A3/
f4VoufnyJ1yX9f3fVaL4+6dhcl6P1TfxtUSFrig6Tn5PEnecMljzETIF5DR9tPEBGQgTD+sZyzh8/
dWkSmzEvnadumNqpP4vq/
URkpTEmz71cay5KuSksreKyv37etljkK8v3kB4XQcFux6THBZtKaWpZ27ZXfajd1mmJBeAvC7ax46Cjv6eh
uYWH39/MzHEZJEaH0S8hkve/ewbPfbaT//vMdVb/ayuKXJLLD/+zhg/WlwCwdMchyo7W8/
AVo+mfFMXsaTltP6v735c1je1vdqZUe7TPRSk3cwuK2xILOJZbaU0srZZZG3V1BfeFKhuaW9h7+NiSL/
0SIrnznMGEuPWfJEa5Np/
N21Dicvy9tftxNzg1lilOQ69F4HrdHEx1Ak0uSrnxWLQSyO7junZXXEQon23rmv1N3BeqDAuxcelfP+PqJ7
+gqNyReJKiw1wmXcaGh/Dd83Lb3ofabaS7zavJdFvsstVzN0/
il5eO4Jap2bx2+2IMH3liWwooBdrn0kb7XFSrA5V1zPzb55RU1gGO2ey/
uXwU981dw8b9rvumPDZrnMfOkSfKGMPzn+/iw/UlbC2tculfmTY4mX99c3Lb+y0lVew8WM1pg/
oQ77bS8YKNB7in1dVUNzQTHxnKMzdM7NCcG6UC4avPRZOLRZOLcIZV18iCTQeIDqvhnGGphNptFJXXcMbv
P 3Y5Lz87ibnfOq1LYmhqbmHwz1z3uYsJD2H9gxcGfl+quka2lR5leHockWGeNTKITpR26CvVAbERoVwx3nWe
R0SoHbtNXLYHjgrvug/
sELuNCVkJLlsY5+d4Lk3jT2xEKBOyfK9JpIRX0T4XpQKUEhvOTadlt72PCLVxt7VeV1f589fHcdrAPkSF2T
I7aEq7c2+U6i60WcyizWlqUCt3V7DzYDVn5ia3uxhlq/qmZj7eXIYInDM0ITA/+9cr1ZNos5hSnWTigES/
v9+7g6pr5MonvmBbgWPPI+F943jj26f5XcJfgZ5O/3xSgou99dW+tsQCsGI/
pdc5J12tsLSKRZsPUB3AVsxKnSi900mpLubtw9zbsv5d6Q/
zNvP3j7cDjjkyr9w2haHp3ldYVqozaM1FqS522dh+xEUc+zsuMSrU754tna20so6nPj22V0t5dQOPL9rmcs
6H6/dzyeNLuODRT3n5y90nLTbVe2nNRaku1i8hkne+M41XlhdhE/
hGflanrkXWnsO1jS7DpwEOHT22V0th6VHu+vfqtnN+9t/
1ZPeJZqpua6xOgCYXpU6CAX2i+clFnbMcf0cNSYtlbGY8a4qPtJVdPbF/2+svth/
0SD6Lt5ZpclEnRJOLUgeAF2/N59nPdrL7UA0XiUrnotHHmuWG9/
Xc4MxbmVldoclFqVNAQIRY226U7iZIJ/GdcwfzzOldNLcYrsnL5LKx/
U5yhKq30eSilOK+6UO58+zBNBtDTLh+LKqTp/+LIPKjrrHZ6xL8vZEubKk6kyYXpbwoKq/
hu6+uZvWew+SmxvDoteMYnRkf7LCU6jF0notSXvzirfWstlYj3lZ6lHtfWx3kiJTqWXptzUVEZgCPAXbg/
4wxc4lckupB1jkN2wXYXIZN9k/eC1I0wRct8PTNE5g29ORN/
IQ9W6+suYilHfg7cBEwAviGilwlblSqpyguq+RQdUOww+hWqg1c//
ygUzrBgo7plckFyAcKjTE7jDENwKvAzCDHpHglaX9aEuwQurVvPr8s2CGoHgC3JpcMoMjpfbFV5kJEbheRA
hEpKCsrO2nBKdWTLdpyKNghqB6gtyaXgBhjnjHG5Blj8lJSUoldjll9ws8uyg12CKoH6K3JZS/
Q3+l9plWmVLt2zbkk2CF0a7PPGhLsEFQP0FtHi60AckUkB0dSmQVcF9yQVE+iCUapE9Mrk4sxpklE7gbm4R iK/
JwxZkOQw1JKqVNGr0wuAMaY94H3gx2HUkqdinprn4tSSqkg0uSilFKq02lyUUop1ek0uSillOp0Yoxp/
6xTgliUAbuDHYdSXiQDB4MdhFI+DDDGeMxC1+SiVDcnIgXGmLxgx6FUR2izmFJKqU6nyUUppVSn0+SiVPf3
TLADUKqitM9FKaVUp9Oai1JKqU6nyUUppVSn0+SilFKq02lyUUop1ek0uSillOp0/x/
R7sbR0WMrDQAAAABJRU5ErkJggg==\n"
"metadata": {
"needs background": "light"
```

```
"cell_type": "code",
"source": [
"plt.hist(df['Balance'])"
],
"metadata": {
"colab": {
"base uri": "https://localhost:8080/",
"height": 369
},
"id": "QIRPX3ftUvfY".
"outputId": "4060536b-0e2b-4b7b-885b-4d8f110610d0"
},
"execution count": "null",
"outputs": [
"output type": "execute result",
"data": {
"text/plain": [
"(array([3.623e+03, 6.900e+01, 3.600e+02, 1.173e+03, 2.081e+03, 1.747e+03,\n",
"7.290e+02, 1.860e+02, 3.000e+01, 2.000e+00]),\n", "array([0., 25089.809, 50179.618, 75269.427,
100359.236,\n",
" 125449.045, 150538.854, 175628.663, 200718.472, 225808.281,\ n",
" 250898.09 ]),\n",
" <a list of 10 Patch objects>)"
},
"metadata": {},
"execution count": 17
},
"output type": "display data",
"data": {
"text/plain": [
"<Figure size 432x288 with 1 Axes>"
],
"image/png":
"iVBORw0KGqoAAAANSUhEUqAAAYAAAAD4CAYAAADIwTGnAAAABHNCSVQICAqIfAhkiAAAAAIwSFIzAAA
LEg AACxIB0t1+/
AAAADh0RVh0U29mdHdhcmUAbWF0cGxvdGxpYiB2ZXJzaW9uMy4yLjlsIGh0dHA6Ly9tYXRwbG90bGliLm9y
Zy+WH4yJAAATdEIEQVR4nO3db4xd9X3n8fen5k+qJigmTC2vba1J1quKrFTDzqJRoyqbKMY4DyBSNjIPisU
iubsLUiJ1q5r2AWmySGS1CRLalMYR3pAqG0KbRFqJXeoSpCoPAqxdx2Cly0AcYcvBk5iQRtGyC/vdB/
fn1cWZ8dyxZ+ba83u/pKt77vf8zjm/n89lPpw/995UFZKk/
vzKuDsgSRoPA0CSOmUASFKnDABJ6pQBIEmdumDcHTidyy67rDZu3DjubkjSeeXpp5/+cVVNzNfunA6AjRs3
MjU1Ne5uSNJ5JckPR2nnKSBJ6pQBIEmdMgAkqVMGgCR1ygCQpE4ZAJLUKQNAkjpIAEhSpwwASerUOf1J4L
O 1cde3xrLdw3d/aCzblaSF8AhAkjpIAEhSpwwASerUvAGQ5G1JnkzyvSQHk/
xpq38xyQ+S7G+Pza2eJPcmmU5yIMIVQ+vakeSF9tixdMOSJM1nIIvArwPvr6qfJ7kQ+E6Sv27z/rCq/
uqU9tcDm9rjGuA+4JoklwJ3ApNAAU8n2VtVry7GQCRJCzPvEUAN/
Ly9vLA96jSL3AB8qS33XeCSJGuB64B9VXWi/
dHfB2w9u+5Lks7USNcAkqxKsh84zuCP+BNt1l3tNM89SS5utXXAy0OLH2m1ueqnbmtnkqkkUzMzMwscjiRp
VCMFQFW9WVWbgfXA1Un+BXAH8FvAvwluBf5oMTpUVburarKqJicm5v1FM0nSGVrQXUBV9VPgcWBrVR1rp
3I eB/4bcHVrdhTYMLTY+labqy5JGoNR7qKaSHJJm/
5V4IPA99t5fZIEuBF4ti2yF7i53Q10LfBaVR0DHgW2JFmdZDWwpdUkSWMwyl1Aa4EHkgxiEBgPVdU3k3w7y
QQQYD/w71r7R4BtwDTwC+AWgKo6keRTwFOt3Ser6sTiDUWStBDzBkBVHQCunKX+/
jnaF3DbHPP2AHsW2EdJ0hLwk8CS1CkDQJI6ZQBIUqcMAEnqlAEgSZ0yACSpUwaAJHXKAJCkThkAktQpA0C
S OmUASFKnDABJ6pQBIEmdMgAkqVMGgCR1ygCQpE4ZAJLUKQNAkjpIAEhSp+YNgCRvS/
```

Jkku8lOZjkT1v98iRPJJlO8tUkF7X6xe31dJu/cWhdd7T6oSTXLdWgJEnzG+UI4HXg/ VX128BmYGuSa4FPA/dU1T8DXgVube1vBV5t9XtaO5JcAWwH3g1sBf4syarFHlwkaXTzBkAN/ Lv9vLA9Cng/8Fet/

gBwY5u+ob2mzf9AkrT6g1X1elX9AJgGrl6UUUiSFmykawBJViXZDxwH9gEvAj+tqjdakyPAuja9DngZoM1/

DfiN4fosywxva2eSqSRTMzMzCx+RJGkklwVAVb1ZVZuB9Qz+r/

23IqpDVbW7qiaranJiYmKpNiNJ3VvQXUBV9VPgceA9wCVJLmiz1gNH2/RRYANAm//

rwE+G67MsI0IaZqPcBTSR5JI2/avAB4HnGQTBR1qzHcDDbXpve02b/

+2qqlbf3u4SuhzYBDy5WAORJC3MBfM3YS3wQLtj51eAh6rqm0meAx5M8p+A/wnc39rfD/

xFkmngBIM7f6iqg0keAp4D3gBuq6o3F3c4kqRRzRsAVXUAuHKW+kvMchdPVf0v4N/

Msa67gLsW3k1J0mLzk8CS1CkDQJI6ZQBIUqcMAEnqlAEgSZ0yACSpUwaAJHXKAJCkThkAktQpA0CSOmUASF

KnDABJ6pQBIEmdMgAkqVMGgCR1ygCQpE4ZAJLUKQNAkjpIAEhSpwwASerUvAGQZEOSx5M8I+Rgko+1+ie SH E2yvz22DS1zR5LpJleSXDdU39pq00I2Lc2QJEmjuGCENm8Af1BVf5/

kHcDTSfa1efdU1X8ZbpzkCmA78G7gnwB/

m+Sft9mfAz4IHAGeSrK3qp5bjIFlkhZm3gCoqmPAsTb9j0meB9adZpEbgAer6nXgB0mmgavbvOmqegkgyYO trQEgSWOwoGsASTYCVwJPtNLtSQ4k2ZNkdautA14eWuxlq81VP3UbO5NMJZmamZlZSPckSQswcgAkeTvwN e DjVfUz4D7gXcBmBkcln1mMDlXV7qqarKrJiYmJxVilJGkWo1wDlMmFDP74f7mqvg5QVa8Mzf8C8M328iiwY Wjx9a3GaeqSpGU2yl1AAe4Hnq+qzw7V1w41+zDwbJveC2xPcnGSy4FNwJPAU8CmJJcnuYjBheK9izMMSdJC iXIE8DvA7wHPJNnfan8M3JRkM1DAYeD3AarqYJKHGFzcfQO4rareBEhyO/

AosArYU1UHF3EskqQFGOUuoO8AmWXWI6dZ5i7grlnqj5xuOUnS8vGTwJLUKQNAkjplAEhSpwwASeqUASBJn TIAJKITBoAkdcoAkKROGQCS1CkDQJI6ZQBIUqcMAEnqlAEgSZ0yACSpUwaAJHXKAJCkThkAktQpA0CSOjX K bwJL56yNu741tm0fvvtDY9u2tBjmPQJIsiHJ40meS3lwycda/dlk+5K80J5Xt3qS3JtkOsmBJFcNrWtHa/9Ckh1LNyxJ0nxGOQX0BvAHVXUFcC1wW5lrgF3AY1W1CXisvQa4HtjUHjuB+2AQGMCdwDXA1cCdJ0NDkrT8 5 q2AqjpWVX/

fpv8ReB5YB9wAPNCaPQDc2KZvAL5UA98FLkmyFrgO2FdVJ6rqVWAfsHVRRyNJGtmCLgIn2QhcCTwBrKmqY

3Wj4A1bXod8PLQYkdaba76qdvYmWQqydTMzMxCuidJWoCRAyDJ24GvAR+vqp8Nz6uqAmoxOlRVu6tqsqomJyYmFmOVkqRZjBQASS5k8Mf/y1X19VZ+pZ3aoT0fb/Wjwlahxde32lx1SdIYjHIXUID7geer6rNDs/YCJ+/k2QE8PFS/ud0NdC3wWjtV9CiwJcnqdvF3S6tJksZqlM8B/

A7we8AzSfa32h8DdwMPJbkV+CHw0TbvEWAbMA38ArgFoKpOJPkU8FRr98mqOrEoo5AkLdi8AVBV3wEyx+wP

zNK+gNvmWNceYM9COihJWhp+FYQkdcoAkKROGQCS1CkDQJI6ZQBIUqcMAEnqlAEgSZ0yACSpUwaAJHX Kn4S

 $\label{lem:uztC4fo7Sn6LUYvElQJI6ZQBIUqcMAEnqlAEgSZ0yACSpUwaAJHXKAJCkThkAktQpA0CSOmUASFKn5g2AJHuSHE/$ 

y7FDtE0mOJtnfHtuG5t2RZDrJoSTXDdW3ttp0kl2LPxRJ0kKMcgTwRWDrLPV7qmpzezwCkOQKYDvw7rbMnyVZlWQV8DngeuAK4KbWVpl0JvN+GVxV/

V2SjSOu7wbgwap6HfhBkmng6jZvuqpeAkjyYGv73IJ7LElaFGdzDeD2JAfaKaLVrbYOeHmozZFWm6v+S5Ls TDKVZGpmZuYsuidJOp0zDYD7gHcBm4FjwGcWq0NVtbuqJqtqcmJiYrFWK0k6xRn9HkBVvXJyOskXgG+2l0e BDUNN17cap6lLksbgjl4Akqwdevlh4OQdQnuB7UkuTnI5sAl4EngK2JTk8iQXMbhQvPfMuy1JOlvzHgEk+Q rwPuCyJEeAO4H3JdkMFHAY+H2AqjqY5CEGF3ffAG6rqjfbem4HHgVWAXuq6uCij0aSNLJR7gK6aZby/ adpfxdw1yz1R4BHFtQ7SdKS8ZPAktQpA0CSOmUASFKnDABJ6pQBIEmdMgAkqVMGgCR1ygCQpE4ZAJLUK QNA

kjplAEhSpwwASeqUASBJnTqjH4SRTrVx17fG3QVJC+QRgCR1ygCQpE4ZAJLUKQNAkjplAEhSp+YNgCR7khx P8uxQ7dlk+5K80J5Xt3qS3JtkOsmBJFcNLbOjtX8hyY6lGY4kaVSjHAF8Edh6Sm0X8FhVbQlea68Brgc2tc dO4D4YBAZwJ3ANcDVw58nQkCSNx7wBUFV/B5w4pXwD8ECbfgC4caj+pRr4LnBJkrXAdcC+qjpRVa8C+/jlUJEkLaMzvQawpqqOtekfAWva9Drg5aF2R1ptrrokaUzO+iJwVRVQi9AXAJLsTDKVZGpmZmaxVitJOsWZB sAr7dQO7fl4qx8FNqy1W99qc9V/

SVXtrqrJqpqcmJg4w+5JkuZzpgGwFzh5J88O4OGh+s3tbqBrgdfaqaJHgS1JVreLv1taTZl0JvN+GVySrwD vAy5LcoTB3Tx3Aw8luRX4IfDR1vwRYBswDfwCuAWgqk4k+RTwVGv3yao69cKyJGkZzRsAVXXTHLM+MEvbAm6bYz17gD0L6p0kacn4SWBJ6pQBIEmdMgAkqVMGgCR1ygCQpE4ZAJLUKQNAkjpIAEhSpwwASeqUASBJnZr3

yAknVs27vrW2LZ9+O4PjW3bWnweAUhSpwwASeqUASBJnTIAJKITBoAkdcoAkKROGQCS1CkDQJI6ZQBIUqf O KgCSHE7yTJL9SaZa7dIk+5K80J5Xt3qS3JtkOsmBJFctxgAkSWdmMY4A/nVVba6qyfZ6F/ BYVW0CHmuvAa4HNrXHTuC+Rdi2JOkMLcUpoBuAB9r0A8CNQ/ Uv1cB3gUuSrF2C7UuSRnC2AVDA3yR5OsnOVltTVcfa9I+ANW16HfDy0LJHWu0tkuxMMpVkamZm5iy7J0may 9I+G+h7q+pokt8E9iX5/

vDMqqoktZAVVtVuYDfA5OTkgpaVJl3url4Aqupoez4OfAO4Gnjl5Kmd9ny8NT8KbBhafH2rSZLG4IwDIMmvJXnHyWlgC/

AssBfY0ZrtAB5u03uBm9vdQNcCrw2dKplkLbOzOQW0BvhGkpPr+e9V9T+SPAU8lORW4lfAR1v7R4BtwDTwC+CWs9i2JOksnXEAVNVLwG/

PUv8J8IFZ6gXcdqbbkyQtLj8JLEmdMgAkqVP+KPwKM84fDJd0fvEIQJI6ZQBIUqcMAEnqlAEgSZ0yACSpUw aAJHXKAJCkThkAktQpA0CSOuUngSWNbFyfND9894fGst2VziMASeqUASBJnTIAJKITBoAkdcoAkKROGQCS1 ClvA10C/

iiLpPPBsh8BJNma5FCS6SS7lnv7kqSBZT0CSLIK+BzwQeAl8FSSvVX13HL2Q9L5ZZxH1Sv5Q2jLfQRwNTBdVS9V1f8GHgRuWOY+SJJY/

msA64CXh14fAa4ZbpBkJ7Czvfx5kkNnsb3LqB+fxfLnm97GC465B2Mdbz49ls2e7Zi/

6SiNzrmLwFW1G9i9GOtKMIVVk4uxrvNBb+MFx9yD3sYLyzfm5T4FdBTYMPR6fatJkpbZcgfAU8CmJJcnuQj YDuxd5j5lkljmU0BV9UaS24FHgVXAnqo6ulSbXJRTSeeR3sYLjrkHvY0XlmnMqarl2l4k6RzjV0FlUqcMAE nq1loMgPP96yaSHE7yTJL9SaZa7dlk+5K80J5Xt3qS3NvGeiDJVUPr2dHav5Bkx1D9X7b1T7dlM4Yx7klyP MmzQ7UlH+Nc2xjjmD+R5Gjb1/uTbBuad0fr/6Ek1w3VZ31/

t5srnmj1r7YbLUhycXs93eZvXKbxbkjyeJLnkhxM8rFWX7H7+TRjPjf3c1WtqAeDi8svAu8ELgK+B1wx7n4tcAyHgctOqf1nYFeb3gV8uk1vA/4aCHAt8ESrXwq81J5Xt+nVbd6TrW3astePYYy/

C1wFPLucY5xrG2Mc8yeA/zhL2yvae/di4PL2nl51uvc38BCwvU3/OfDv2/R/

AP68TW8HvrpM410LXNWm3wH8QxvXit3PpxnzObmfl/U/

+mXaAe8BHh16fQdwx7j7tcAxHOaXA+AQsHboTXaoTX8euOnUdsBNwOeH6p9vtbXA94fqb2m3zOPcyFv/GC75GOfaxhjHPNcfhre8bxncOfeeud7f7Q/gj4ELWv3/

tzu5bJu+oLXLGPb3wwy+B2zF7+dZxnxO7ueVeApotq+bWDemvpypAv4mydMZfDUGwJqqOtamfwSsadNzjfd 09SOz1M8FyzHGubYxTre3Ux57hk5VLHTMvwH8tKreOKX+lnW1+a+19sumnY64EniCTvbzKWOGc3A/r8QAWAneW1VXAdcDtyX53eGZNYj4FX3/7nKM8Rz5d7wPeBewGTgGfGa83Vl8Sd4OfA34eFX9bHjeSt3Ps4z 5nNzPKzEAzvuvm6iqo+35OPANBt+i+kqStQDt+XhrPtd4T1dfP0v9XLAcY5xrG2NRVa9U1ZtV9X+BLzDY17 DwMf8EuCTJBafU37KuNv/XW/sll+RCBn8lv1xVX2/

IFb2fZxvzubqfV2IAnNdfN5Hk15K84+Q0sAV4IsEYTt79sIPBuUVa/

eZ2B8W1wGvt0PdRYEuS1e1wcwuDc4XHgJ8lubbdMXHz0LrGbTnGONc2xuLkH6nmwwz2NQz6ub3d2XE5sInBBc9Z39/t/3IfBz7Slj/13+/kmD8CfLu1X1Lt3/5+4Pmq+uzQrBW7n+ca8zm7n8dxYWQZLrxsY3D1/

UXgT8bdnwX2/Z0Mrvh/Dzh4sv8MzuU9BrwA/C1waauHwY/svAg8A0wOrevfAtPtcctQfbK9AV8E/

ivjuSD4FQaHwv+HwXnMW5djjHNtY4xj/os2pgPtP+C1Q+3/pPX/EEN3as31/

m7vnSfbv8VfAhe3+tva6+k2/53LNN73Mjj1cgDY3x7bVvJ+Ps2Yz8n97FdBSFKnVulpIEnSCAwASeqUASBJnTIAJKITBoAkdcoAkKROGQCS1Kn/B2PCY/Bb/4SKAAAAAEIFTkSuQmCC\n"

```
},
"metadata": {
"needs_background": "light"
}
}

[
cell_type": "code",
"source": [
"#split data"
],
"metadata": {
"id": "uMk-JgFuU4iC"
},
"execution_count": "null",
"outputs": []
},
{
"cell_type": "code",
"source": [
```

```
"x=df.iloc[:,0:12].values\n",
"y=df.iloc[:,12:14].values"
"metadata": {
"id": "WC67FUjPU-wm"
},
"execution count": "null",
"outputs": []
},
"cell type": "code",
"source": [
"x"
],
"metadata": {
"colab": {
"base uri": "https://localhost:8080/"
"id": "QY-xPbBqVU92",
"outputId": "0ba73df4-1abb-4c1a-9894-3d11288946db" },
"execution count": "null",
"outputs": [
"output_type": "execute_result",
"data": {
"text/plain": [
"array([[1.0000000e+00, 1.5634602e+07, 1.1150000e+03, ..., 1.0000000e+00,\n",
"1.0000000e+00, 1.0000000e+00],\n", "[2.0000000e+00, 1.5647311e+07, 1.1770000e+03, ...,
1.0000000e+00.\n",
"0.0000000e+00, 1.0000000e+00],\n", "[3.0000000e+00, 1.5619304e+07, 2.0400000e+03, ....
3.0000000e+00,\n",
" 1.0000000e+00, 0.0000000e+00],\n", " ...,\n",
"[9.9980000e+03, 1.5584532e+07, 1.5700000e+03, ..., 1.0000000e+00,\n",
"0.0000000e+00, 1.0000000e+00],\n", "[9.9990000e+03, 1.5682355e+07, 2.3450000e+03, ...,
2.0000000e+00,\n",
"1.0000000e+00, 0.0000000e+00],\n", "[1.0000000e+04, 1.5628319e+07, 2.7510000e+03, ...,
1.0000000e+00,\n",
" 1.0000000e+00, 0.0000000e+00]])" ]
},
"metadata": {},
"execution count": 20
},
"cell type": "code",
"source": [
"у"
],
"metadata": {
"colab": {
"base uri": "https://localhost:8080/" },
"id": "YKMLVugxVWkS",
"outputId": "13dbaaba-067a-4c23-9be1-4f09b3a73b27" },
"execution count": "null",
```

```
"outputs": [
"output type": "execute result",
"data": {
"text/plain": [
  "array([[1.0134888e+05, 1.0000000e+00],\n",
                                                        " [1.1254258e+05,
0.0000000e+00],\n", "[1.1393157e+05, 1.0000000e+00],\n", "...,\n",
"[4.2085580e+04, 1.0000000e+00],\n", "[9.2888520e+04,
1.0000000e+00],\n", "[3.8190780e+04, 0.0000000e+00]])" ]
"metadata": {},
"execution count": 21
},
"cell type": "code",
"source": [
"from sklearn.model selection import train test split" ],
"metadata": {
"id": "Xe74DUadVZef"
},
"execution count": "null",
"outputs": []
"cell_type": "code",
"source": [
"xtrain, xtest, ytrain, ytest =
train test split(x,y,test size=0.3,random state=0)"],
"metadata": {
"id": "imxXGVmXVovW"
"execution count": "null",
"outputs": []
},
"cell_type": "code",
"source": [
"xtrain"
],
"metadata": {
"colab": {
"base uri": "https://localhost:8080/"
"id": "dKh70SnOWUXr",
"outputId": "4367c18f-96da-49a5-f7f4-b99c0b3dc636" },
"execution count": "null",
"outputs": [
"output type": "execute result",
"data": {
"text/plain": [
"array([[7.6820000e+03, 1.5633608e+07, 2.5900000e+02, ..., 2.0000000e+00,\n",
"1.0000000e+00, 1.0000000e+00],\n", "[9.0320000e+03, 1.5742323e+07, 1.6400000e+02, ...,
```

```
2.0000000e+00,\n",
"1.0000000e+00, 0.0000000e+00],\n", "[3.6920000e+03, 1.5760244e+07, 1.3040000e+03, ....
1.0000000e+00,\n",
"0.0000000e+00, 1.0000000e+00],\n", "...,\n",
"[3.2650000e+03, 1.5574372e+07, 1.2020000e+03, ..., 2.0000000e+00,\n",
"1.0000000e+00, 0.0000000e+00],\n", "[9.8460000e+03, 1.5664035e+07, 2.1220000e+03, ...,
2.0000000e+00,\n",
" 1.0000000e+00, 1.0000000e+00].\n", " [2.7330000e+03, 1.5592816e+07, 2.6780000e+03, ...,
1.0000000e+00,\n",
" 1.0000000e+00, 0.0000000e+00]])" ]
"metadata": {},
"execution count": 24
"cell type": "code",
"source": [
"xtest"
],
"metadata": {
"colab": {
"base uri": "https://localhost:8080/"
"id": "KJ QFNAiWV6V",
"outputId": "ad3e963c-b846-49b3-b9de-1d04cec62adb" },
"execution count": "null",
"outputs": [
"output_type": "execute_result",
"data": {
"text/plain": [
"array([[9.3950000e+03, 1.5615753e+07, 2.6910000e+03, ..., 1.0000000e+00,\n",
"1.0000000e+00, 1.0000000e+00].\n", "[8.9900000e+02, 1.5654700e+07, 8.4600000e+02, ...,
1.0000000e+00,\n",
"1.0000000e+00, 0.0000000e+00].\n", "[2.3990000e+03, 1.5633877e+07, 1.8570000e+03, ...,
1.0000000e+00,\n",
" 1.0000000e+00, 1.0000000e+00],\n", " ...,\n",
"[9.3080000e+03, 1.5680405e+07, 2.0890000e+03, ..., 2.0000000e+00,\n",
" 1.0000000e+00, 1.0000000e+00],\n", "[8.3950000e+03, 1.5597983e+07, 3.3600000e+02, ....
1.0000000e+00,\n",
"1.0000000e+00, 1.0000000e+00],\n", "[5.2340000e+03, 1.5591286e+07, 2.4530000e+03, ...,
1.0000000e+00,\n",
" 1.0000000e+00, 1.0000000e+00]])" ]
"metadata": {},
"execution count": 25
},
"cell type": "code",
"source": [
"ytest"
```

```
"metadata": {
"colab": {
"base uri": "https://localhost:8080/"
"id": "7mGyl5JsWZvS",
"outputId": "65d6f3a7-e12d-42be-dbd8-ac093775d296" },
"execution count": "null",
"outputs": [
"output_type": "execute_result",
"data": {
"text/plain": [
  "array([[1.9285267e+05, 0.0000000e+00],\n",
                                                       " [1.2870210e+05,
1.0000000e+00],\n", "[7.5732250e+04, 0.0000000e+00],\n", "...,\n",
"[1.6740029e+05, 0.0000000e+00],\n", "[7.0849470e+04,
0.0000000e+00],\n", "[3.3759410e+04, 1.0000000e+00]])"]
"metadata": {},
"execution count": 26
"cell_type": "code",
"source": [
"ytrain"
],
"metadata": {
"colab": {
"base uri": "https://localhost:8080/" },
"id": "HSM2IcWRWfxm",
"outputId": "c7588d22-a74d-4cd8-ce9e-45812b721bc0" },
"execution count": "null",
"outputs": [
"output_type": "execute_result",
"data": {
"text/plain": [
  "array([[5.5796830e+04, 1.0000000e+00],\n",
                                                     " [1.9823020e+04,
0.0000000e+00],\n", "[1.3848580e+04, 0.0000000e+00],\n", "...,\n",
"[1.8142987e+05, 0.0000000e+00],\n", "[1.4875016e+05,
0.0000000e+00],\n", "[1.1885526e+05, 1.0000000e+00]])"]
},
"metadata": {},
"execution count": 27
"cell type": "code",
"source": [],
"metadata": {
"id": "2ZDNd8rPWiLJ"
},
```

```
"execution_count": "null",
"outputs": []
}
]
}
```