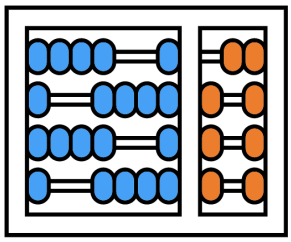


Instituto de Computação (IC) Unicamp

Escola de Extensão da Unicamp

Universidade Estadual de Campinas

INF 331 - Componentização e Reuso de Software
Prof. André Santanché

Aula 01

Orange + notebook

Aluno

Douglas Sermarini - 147730

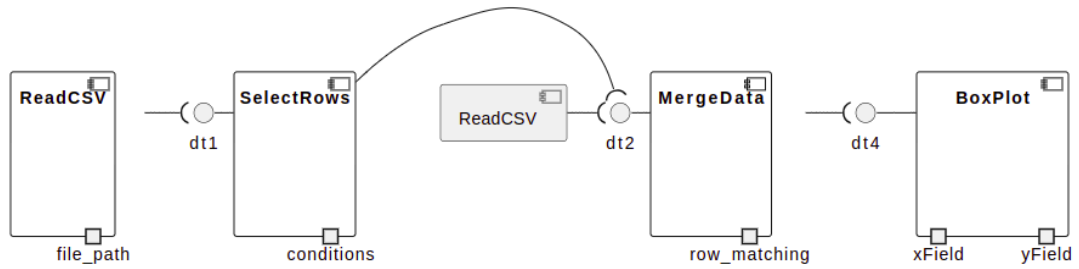
Repositório : https://github.com/Douglas019BR/INF331-lab02

Laboratório 1 – Tarefa 1
Arquivo: Aula2-lab1-atv1.ipynb

[11]:

```
%%plantuml

@startuml

!procedure $property($name)
  portout $name
!endprocedure


component "ReadCSV" as csv1 {
  $property(file_path)
}
component "ReadCSV" as csv2{
  $property(file_path)
}
component SelectRows {
  $property(conditions)
}
component MergeData {
  $property(row_matching)
}
component BoxPlot {
  $property(xField)
  $property(yField)
}
[csv1] -( dt1
dt1 - [SelectRows]
[SelectRows] -( dt2
[csv2] -( dt2
dt2 - [MergeData]
[MergeData] -( dt4
dt4 - [BoxPlot]
@enduml
```

[11]:



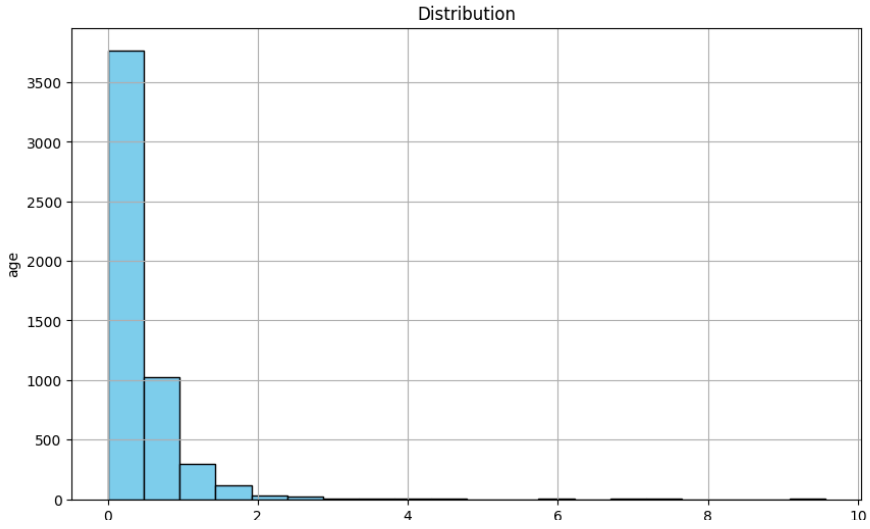
Laboratório 2 – Tarefa 1
Arquivo: aula2-lab2-atv1.ipynb

[17]:

```python
import matplotlib.pyplot as plt

def histogram_plot(data, field, bins, title, y_label):
    plt.figure(figsize=(10, 6))

    # Plotting histogram
    plt.hist(data[field], bins=bins, color='skyblue', edgecolor='black')

    plt.xlabel(field)
    plt.ylabel(y_label)
    plt.title(title)

    plt.grid(True)
    plt.show()
```

[19]:

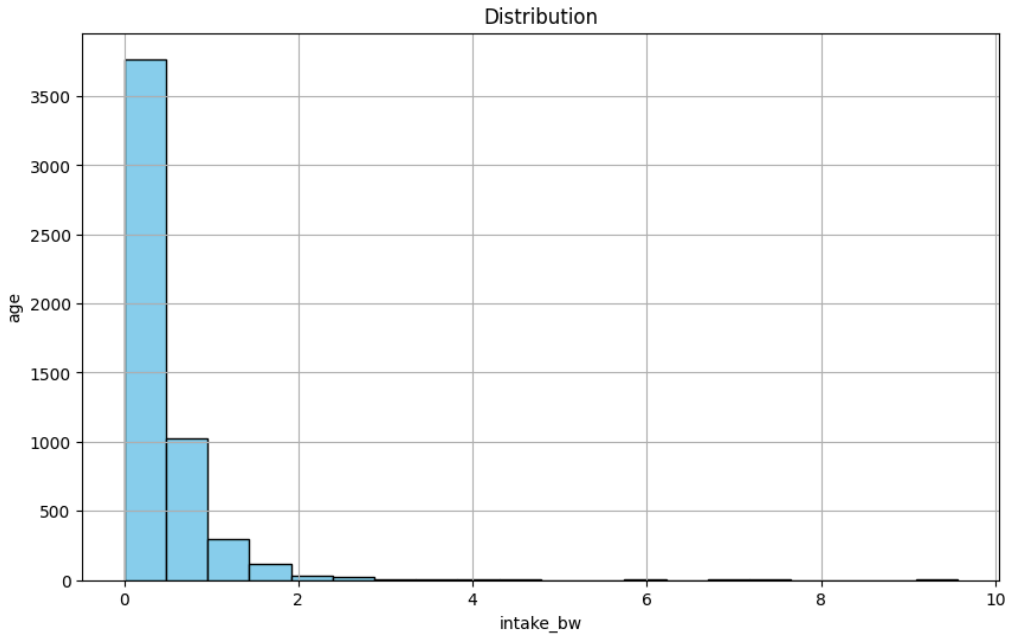
```python
histogram_plot(df, field='intake_bw', bins=20, title='Distribution',y_label='age')
```



Laboratório 3 – Tarefa 1
Arquivo: aula2-lab3-atv1.ipynb

[13]:
```python
import matplotlib.pyplot as plt

class HistogramPlot:
    def __init__(self, df, field, bins, title,y_label):
        self.df = df
        self.field = field
        self.bins = bins
        self.title = title
        self.y_label = y_label

    def plot(self):
        plt.figure(figsize=(10, 6))
        plt.hist(self.df[self.field], bins=self.bins, color='skyblue', edgecolor='black')

        # Adiciona os rótulos e título
        plt.xlabel(self.field)
        plt.ylabel(self.y_label)
        plt.title(self.title)

        # Exibe a grade
        plt.grid(True)

        # Mostra o gráfico
        plt.show()
```

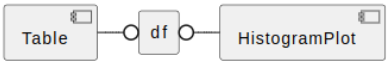
[14]:
```python
distribution = HistogramPlot(df, 'intake_bw', bins=20, title='Distribution',y_label='age')
distribution.plot()
```



[15]:
```
%%plantuml

@startuml

rectangle df
[Table] -0 df
df 0- [HistogramPlot]

@enduml
```

```
Writing output for /home/jovyan/notebooks/componentization/49853ae8-78c3-4dbc-b113-f0d88da63040.uml to 49853ae8-78c3-4dbc-b113-f0d88da63040.svg
```

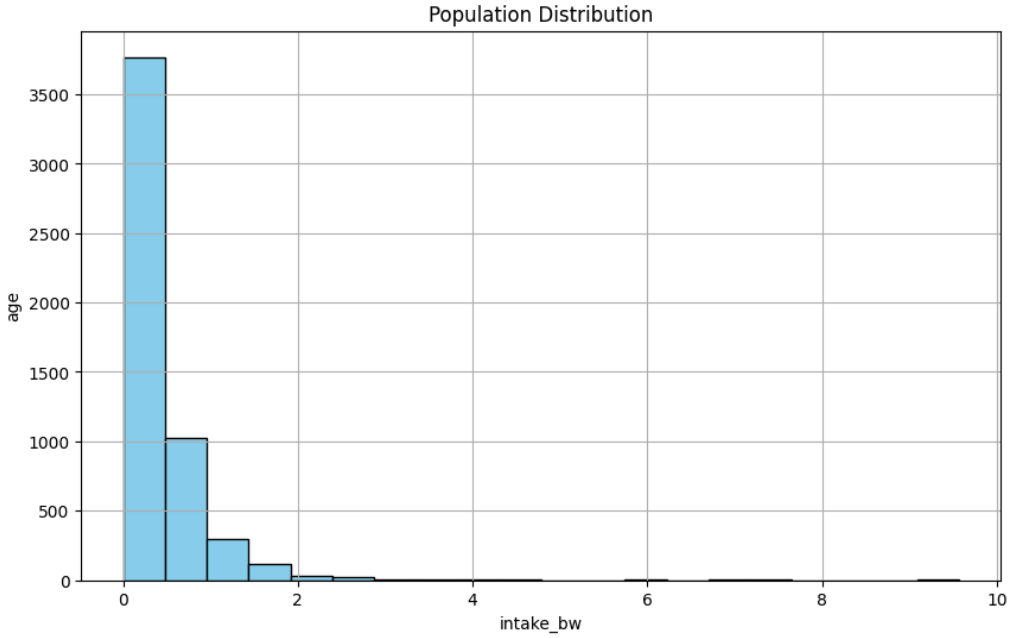
[15]:



Laboratório 4 – Tarefa 1
Arquivo: aula2-lab4-atv1.ipynb

[9]:
```
import matplotlib.pyplot as plt

class HistogramPlot:
    def __init__(self, field, bins, title, y_label):
        self.field = field
        self.bins = bins
        self.title = title
        self.y_label = y_label
        self.df = None  # Inicialmente sem dados

    def plot(self):
        if self.df is None:
            raise ValueError("Data not set. Use the 'update' method to provide data.")

        # Cria o gráfico de histograma
        plt.figure(figsize=(10, 6))
        plt.hist(self.df[self.field], bins=self.bins, color='skyblue', edgecolor='black')

        # Adiciona os rótulos e título
        plt.xlabel(self.field)
        plt.ylabel(self.y_label)
        plt.title(self.title)

        # Exibe a grade
        plt.grid(True)

        # Mostra o gráfico
        plt.show()

    # Interface para atualizar os dados e replotar
    def update(self, new_data):
        self.df = new_data
        self.plot()
```

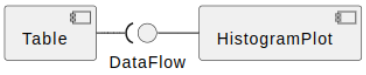
[11]:
```
table_intake = Table('intake-person-demo(potato-chips).csv')
hist_plot = HistogramPlot(field='intake_bw', bins=20, title='Population Distribution', y_label='age')

# Connect the ScatterPlot to the DataLoader
table_intake.connect(hist_plot)
```



[12]:
```
%%plantuml

@startuml
[Table] -( DataFlow
DataFlow - [HistogramPlot]
@enduml
```

```
Writing output for /home/jovyan/notebooks/componentization/c59db57e-336d-44bb-b38d-d82f8101c1bd.uml to c59db57e-336d-44bb-b38d-d82f8101c1bd.svg
```

[12]:

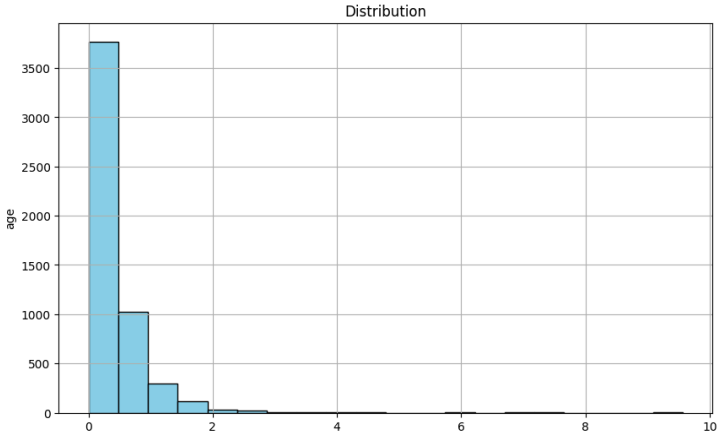


Laboratório 5 – Tarefa 1
Arquivo: aula2-lab5-atv1.ipynb

[9]:

```python
import matplotlib.pyplot as plt

class HistogramPlot:
    def __init__(self, field=None, bins=None, title=None, y_label=None):
        self._field = field
        self._bins = bins
        self._title = title
        self._y_label = y_label
        self._df = None

    # Property para 'field'
    @property
    def field(self):
        return self._field

    @field.setter
    def field(self, value):
        self._field = value
        self.plot()

    # Property para 'bins'
    @property
    def bins(self):
        return self._bins

    @bins.setter
    def bins(self, value):
        self._bins = value
        self.plot()

    # Property para 'title'
    @property
    def title(self):
        return self._title

    @title.setter
    def title(self, value):
        self._title = value
        self.plot()

    # Property para 'y_label'
    @property
    def y_label(self):
        return self._y_label

    @y_label.setter
    def y_label(self, value):
        self._y_label = value
        self.plot()

    def plot(self):
        # Verifica se todas as variáveis foram definidas antes de gerar o gráfico
        if self._df is not None and self._field is not None and self._bins is not None and self._title is not None and self._y_label is not None:
            plt.figure(figsize=(10, 6))
            plt.hist(self._df[self._field], bins=self._bins, color='skyblue', edgecolor='black')

            # Adiciona rótulos e título
            plt.xlabel(self._field)
            plt.ylabel(self._y_label)
            plt.title(self._title)

            # Exibe a grade
            plt.grid(True)

            # Mostra o gráfico
            plt.show()

    # Interface para atualizar os dados
    def update(self, new_data):
        self._df = new_data
        self.plot()
```

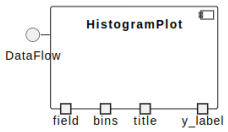
[11]:
```
# Create instances
table_intake = Table()
table_intake.file_path = 'intake-person-demo(potato-chips).csv'


hist_plot = HistogramPlot()
hist_plot.field='intake_bw'
hist_plot.bins=20
hist_plot.title='Distribution'
hist_plot.y_label='age'


table_intake.connect(hist_plot)
```



[13]:
```
%%plantuml

!procedure $property($name)
    portout $name
!endprocedure

@startuml
component HistogramPlot {
    $property(field)
    $property(bins)
    $property(title)
    $property(y_label)
}
DataFlow - [HistogramPlot]
@enduml
```

```
Writing output for /home/jovyan/notebooks/componentization/ebe0a03d-1fd4-4f0d-98f3-749ee489a140.uml to ebe0a03d-1fd4-4f0d-98f3-749ee489a140.svg
```

[13]:



[14]:
```
%%plantuml

@startuml
[Table] -( DataFlow
DataFlow - [HistogramPlot]
@enduml
```

```
Writing output for /home/jovyan/notebooks/componentization/b09d1894-c689-4781-8960-5f95f39b4105.uml to b09d1894-c689-4781-8960-5f95f39b4105.svg
```

[14]: