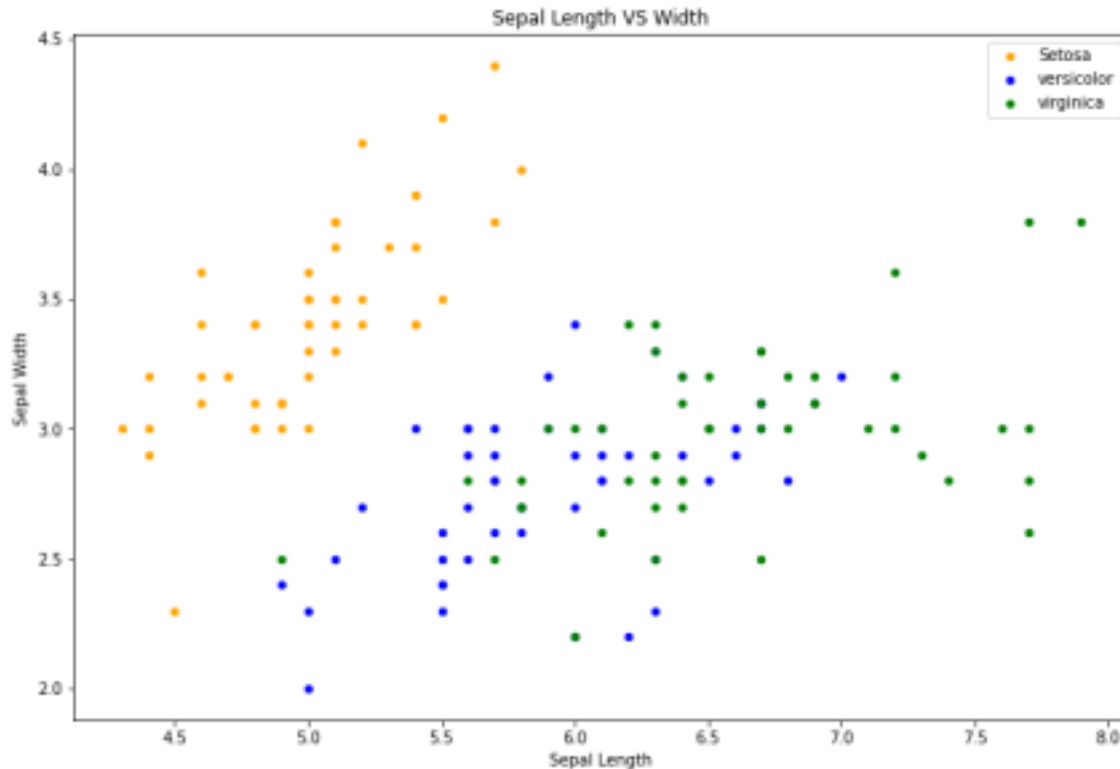**HOMEWORK 4**

**DESCRIPTION**
1. Use graphs that we build together during session 16.
2. These graphs visualise analytics data for the Iris flowers classification.
3. Your task will be to provide synopsis description for each of the graphs mentioned below.

**TASK**
1. GRAPH 1: "Create a graph to find relationship between the sepal length and width. "



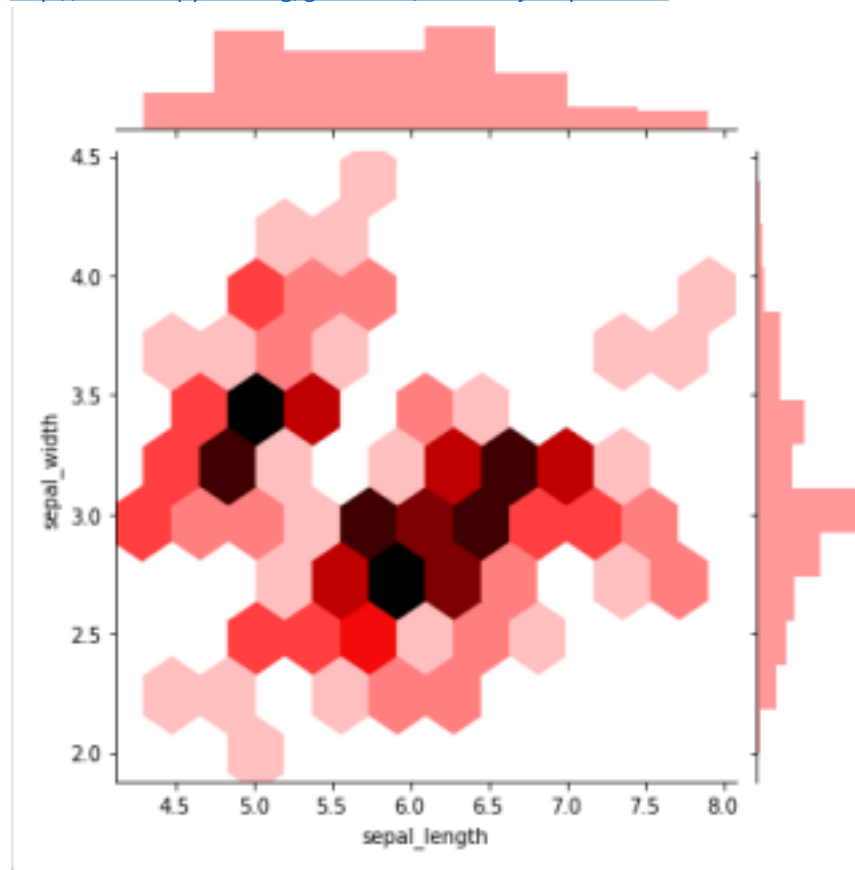Describe and interpret graph results.

**MY ANSWER:**

The Iris flower species can be distinguished in their type (e.g. Sentosa, Versicolor, or Virginica) based on the length and width size of their sepal as the pattern shown in the graph. The sepal is the outermost part of the flower, typically green and leaf-like, that encloses a developing bud.

| Iris Species: | Lenght Size | Width Size | Analysis |
|---|---|---|---|
| 🟠 Sentosa | Small to Medium | Medium to Large | Setosa species has small to medium size sepal lengths and medium to large size sepal widths. |
| 🔵 Versicolor | Small to Medium | Small to Medium | Versicolor species is average in comparison to the other two species. |
| 🟢 Virginica | Medium to Large | Small to Medium | Virginica species has medium to large size sepal lengths and small to medium size sepal widths. |

2. GRAPH 2: "Create a joinplot to describe individual distributions on the same plot between Sepal length and Sepal width. "

You can find more information and examples about Seaborn Jointplot here:
http://seaborn.pydata.org/generated/seaborn.jointplot.html



Describe and interpret graph results.

<p align="center"><strong style="color:blue">MY ANSWER:</strong></p>

|  | Sepal Length | Sepal Width |
|---|---|---|
| **Histogram** | The Sepal Length bar graph is shown at the top portion of the graph. (X-axis) | The Sepal Width bar graph is shown on the right side portion of the graph. (Y-axis) |
|  | The highest distribution is found at 5.0 cm and 6.5 cm. | The highest distribution is found at 3.0 cm. |
|  | While the lowest is between 7.5 to 8.0 cm | While the lowest is on both opposite sizes 2.0 to 4.5 cm |
| **Hexagonal bins** | The darkest part of the hexagonal bin shows the high density of joint distribution with the Sepal Length and the Sepal Width of the Iris flowers data which are at the:<br>   1.  Middle to lower third part:<br>      Sepal Length of 6.0 cm and Sepal Width between 2.5 to 3.0 cm<br>   2.  Left to middle part:<br>      Sepal Length of 5.0 cm and Sepal Width of 3.5 cm | |
| **Analysis** | The graph indicates that most of the Iris flowers data are accumulated in the middle size range for both sepal length and width. There is also a dense concentration of Iris flowers data that are smaller in length but fall within the middle size range for width. There are only a few small Sepal lengths and small Sepal widths. Similarly, there are only a few Iris flowers that have a large length and a large width. | |

**WHAT ARE WE LOOKING FOR:**
   1. Your ability to interpret analysis results.
   2. Your ability to interpret and explain diagrams .