ASSIGNMENT - 23

Q1. If you have any, what are your choices for increasing the comparison between different figures on the same graph?

Ans: Increasing Comparison between Figures on the Same Graph:

* Using different visual encoding techniques like color, size, or shape for different figures.
* Adjusting axis scales or using multiple y-axes to accommodate varying data ranges.
* Employing groupings, annotations, or highlighting to emphasize differences between figures.

Q2. Can you explain the benefit of compound interest over a higher rate of interest that does not compound after reading this chapter?

Ans: Compound interest involves earning interest on both the initial principal and the accumulated interest, resulting in exponential growth over time. Higher non-compounded rates may yield larger immediate returns, but compound interest allows wealth to grow more significantly over the long term due to the compounding effect.

Q3. What is a histogram, exactly? Name a numpy method for creating such a graph.

Ans: A histogram is a graphical representation of the frequency distribution of a dataset. In NumPy, numpy.histogram() is used to create a histogram graph from a dataset by dividing it into bins and showing the frequency of values falling into each bin.

Q4. If necessary, how do you change the aspect ratios between the X and Y axes?

Ans: Aspect ratios between X and Y axes in a plot can be adjusted by setting the aspect ratio property using plt.gca().set\_aspect('equal', adjustable='box') in Matplotlib, ensuring equal aspect ratios or using specific ratio values.

Q5. Compare and contrast the three types of array multiplication between two numpy arrays: dot product, outer product, and regular multiplication of two numpy arrays.

Ans: Array Multiplication in Numpy:

* Dot Product (numpy.dot()): Computes the dot product between two arrays or matrices.
* Outer Product (numpy.outer()): Generates an outer product of two vectors, resulting in a matrix.
* Regular Multiplication (\* operator): Performs element-wise multiplication between two arrays of the same shape.

Q6. Before you buy a home, which numpy function will you use to measure your monthly mortgage payment?

Ans: You can use numpy.pmt() in NumPy to calculate the monthly mortgage payment, considering the loan amount, interest rate, and loan period.

Q7. Can string data be stored in numpy arrays? If so, list at least one restriction that applies to this data.

Ans: Yes, string data can be stored in numpy arrays using the numpy.array() function with dtype specified as numpy.str\_ or numpy.string\_.

One restriction is that numpy arrays with string data have a fixed length for each element, causing truncation if a longer string is assigned.