1. **How data visualizations are playing an important role DS/AIML projects?**

Data visualizaitons play an important role in DA/AIML projects because of the following reasons.

Data visualization is the act of taking information (data) and placing it into a visual context, such as a map or graph. Data visualizations make big and small data easier for the human brain to understand, and visualization also makes it easier to detect patterns, trends, and outliers in groups of data.

Essentially, there are three main goals to visualization:

* Data Exploration — find the unknown
* Data Analysis — check hypotheses
* Presentation — communicate and disseminate

## The Five-Step Model

Visualization is often described as the following five-step model, a process which follows a fairly logical progression.

Firstly, one is required to isolate a specific target or question that is to be the subject of evaluation.

The second stage is data wrangling, which is 90% of what data scientists do when they are working with data. This procedure involves getting the data into a workable format, performing exploratory data analysis to understand their data set, which may involve various ways of summarizing or plotting the data.

The third stage is the design stage, which involves the development of a story that one wants to tell with the data. This is closely linked back to the target we defined.

The fourth step involves the implementation of the visualization, such as via programming of interactive web-based visualizations . This is the part of the process that involves some coding, whereas the design stage involves thinking, drawing, ideation, and so on.

The fifth stage is essentially a review stage, you look at your implementation and decide whether it sends the message that you want to communicate, or answers the question you set out to answer.

The following visualizations help us proceed with the data science problems

* Histograms
* Bar/Pie charts
* Scatter/Line plots
* Time series
* Relationship maps
* Heat maps
* Geo Maps
* 3-D Plots
* Higher-Dimensional Plots

1. **Read the following textual information and design a dashboard consisting of the appropriate visualizations based on the given information.**

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|  | **2012** | **2013** |
|  |  |  |
| Number of deaths | 394982 | 400517 |
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|  | **2013** |  |
| Deaths due to UnNatural Causes | 377758 | 94.30% |
| Deaths due to Natural Causes | 22759 | 5.70% |

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| --- | --- | --- |
|  | 2012 | 2013 |
| **Traffic Road Accidents** | 139091 | 137423 |

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| --- | --- | --- | --- |
|  | 2012 |  | 2013 |
| Number of Male | 118533 |  | 117055 |
| Numer of Female | 20558 |  | 20368 |

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| --- | --- | --- |
| Traffic Accidents Pie Chart | |  |
|  |  |  |
|  | Male | Female |
| 2012 | 86.20% | 13.80% |
| 2013 | 85.20% | 14.80% |

|  |  |  |
| --- | --- | --- |
|  | 2013 Age Group Traffic Accidents | |
| 0-14 | 7305 |  |
| 15-29 | 42453 |  |
| 30-44 | 47838 |  |
| 45-59 | 28263 |  |
| >60 | 11564 |  |

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|  |  |  | 2013( 30-44 Age Group) |
| Number of male | |  | 41574 |
| Number of female | |  | 6264 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  | 2013(30-44 Age Group) | |
| Male |  |  | 86.90% |  |
| Female |  |  | 13.10% |  |