**DAILY ASSESSMENT FORMAT**

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| **Date:** | **01/06/20202** | **Name:** | **Krishna Swetha** |
| **Course:** | **DIGITAL DESIGN USING HDL** | **USN:** | **4AL16EC032** |
| **Topic:** | **Industry Applications of FPGA**  **FPGA Business Fundamentals**  **FPGA vs ASIC Design Flow** | **Semester & Section:** | **6th,B** |
| **Github Repository:** | **Krishna-Swetha** |  |  |

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| **FORENOON SESSION DETAILS** |
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| **Report –**  **The impact of new FPGA features in industrial applications is analyzed in detail in three main areas, namely digital real-time simulation, advanced control techniques, and electronic instrumentation, with focus on mechatronics, robotics, and power systems design.**  **FPGA vs ASIC. FPGA: A Field-Programmable Gate Array (FPGA) is a semiconductor device containing programmable logic components called "logic blocks", and programmable interconnects. ... As ASIC are designed for a specific application they can be optimized to maximum, hence we can have high speed in ASIC designs.**  **How Does an FPGA work? You're designing a digital circuit more than anything else, basically at one layer of abstraction above the logic gate (AND, OR, NOT) level. At the most basic level, you need to think about how you're specifying the layout and equations at the level of LUTs (Look-Up Tables) and FFs (Flip-Flops).**  **An FPGA is a (mostly) digital, (re-)configurable ASIC. I say mostly because there are analog and mixed-signal aspects to modern FPGAs. For example, some have A/D converters and PLLs. I put re- in parenthesis because there are actually one-time-programmable FPGAs, where once you configure them, that’s it, never again. However, most FPGAs you’ll come across are going to be re-configurable. So what do I mean by digitally configurable ASIC?**  **I mean that at the core of it, you’re designing a digital logic circuit, as in AND, OR, NOT, flip-flops, etc. Of course that’s not entirely accurate and there’s much more to it than that, but that is the gist at its core.** |

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| **Date:** | **01/06/2020** | **Name:** | **Krishna Swetha** | |
| **Course:** | **Python** | **USN:** | **4AL16EC032** | |
| **Topic:** | **Interactive Data Visualization with Bokeh** | **Semester & Section:** | **6th,B** | |
| **AFTERNOON SESSION DETAILS** | | | |
| **Image of session** | | | |
| **Report –**  **#Snippet producing the triangle based plot**  **#Making a basic Bokeh line graph**    **#importing Bokeh**  **from bokeh.plotting import figure**  **from bokeh.io import output\_file, show**    **#prepare some data**  **x=[3,7.5,10]**  **y=[3,6,9]**    **#prepare the output file**  **output\_file("Line.html")**    **#create a figure object**  **f=figure()**    **#create line plot**  **f.triangle(x,y)**    **#write the plot in the figure object**  **show(f)**  **#Snippet producing the circle based plot**  **#Making a basic Bokeh line graph**    **#importing Bokeh**  **from bokeh.plotting import figure**  **from bokeh.io import output\_file, show**    **#prepare some data**  **x=[3,7.5,10]**  **y=[3,6,9]**    **#prepare the output file**  **output\_file("Line.html")**    **#create a figure object**  **f=figure()**    **#create line plot**  **f.circle(x,y)**    **#write the plot in the figure object**  **show(f)**  **#Plotting percentage of women who received an engineering degree over years**    **#importing bokeh and pandas**  **from bokeh.plotting import figure**  **from bokeh.io import output\_file, show**  **import pandas**    **#prepare some data**  **df=pandas.read\_csv("http://pythonhow.com/data/bachelors.csv")**  **x=df["Year"]**  **y=df["Engineering"]**    **#prepare the output file**  **output\_file("Line\_from\_bachelors.html")**    **#create a figure object**  **f=figure()**    **#create line plot**  **f.line(x,y)**    **#write the plot in the figure object**  **show(f)**  **import pandas**    **from bokeh.plotting import figure, output\_file, show**    **df=pandas.read\_excel("http://pythonhow.com/data/verlegenhuken.xlsx",sheet\_name=0)**  **df["Temperature"]=df["Temperature"]/10**  **df["Pressure"]=df["Pressure"]/10**    **p=figure(plot\_width=500,plot\_height=400,tools='pan')**    **p.title.text="Temperature and Air Pressure"**  **p.title.text\_color="Gray"**  **p.title.text\_font="arial"**  **p.title.text\_font\_style="bold"**  **p.xaxis.minor\_tick\_line\_color=None**  **p.yaxis.minor\_tick\_line\_color=None**  **p.xaxis.axis\_label="Temperature (°C)"**  **p.yaxis.axis\_label="Pressure (hPa)"**    **p.circle(df["Temperature"],df["Pressure"],size=0.5)**  **output\_file("Weather.html")**  **show(p)**  **Visual Attributes**  **Once you have built a basic plot, you can customize its visual attributes including changing the title color and font, adding labels for xaxis and yaxis, changing the color of the axis ticks, etc. All these properties are illustrated in the diagram below:**  **And here is the code if you want to play around with it:**  **from bokeh.plotting import figure, output\_file, show**  **p = figure(plot\_width=500, plot\_height=400, tools = 'pan, reset')**  **p.title.text = "Earthquakes"**  **p.title.text\_color = "Orange"**  **p.title.text\_font = "times"**  **p.title.text\_font\_style = "italic"**  **p.yaxis.minor\_tick\_line\_color = "Yellow"**  **p.xaxis.axis\_label = "Times"**  **p.yaxis.axis\_label = "Value"**  **p.circle([1,2,3,4,5], [5,6,5,5,3], size = [i\*2 for i in [8,12,14,15,20]], color="red", alpha=0.5)**  **output\_file("Scatter\_plotting.html")**  **show(p)**  **For a complete list of visual attributes, see the Styling Visual Attributes documentation page of Bokeh.** | | | |