MANIPAL UNIVERSITY JAIPUR

International Summer School Manipal University Jaipur [ISSMUJ]-2022

[Hybrid Mode]

Course Overview

Name of Course: Understanding Data Visualization in Data Science using Tableau/ Microsoft Power BI

Name of instructor: **Dr. Vaibhav Bhatnagar, Dr. Linesh Raja, Dr. Ramesh C. Poonia**
Session: June-July 2022
Language of instruction: English
Number of contact hours: 36
Credit awarded: 03

Objective of Course

This course provides you the opportunity to learn skills and content to practice and engage in scalable pattern discovery methods on massive transactional data, discuss pattern evaluation measures, and study methods for mining diverse kinds of patterns, sequential patterns, and sub-graph patterns. The course outcomes are following

- Understanding Concept and Need of Data Visualization in Data Science
- Familiar with Tableau and Microsoft Power BI
- Applying basic data wrangling on Tableau/Power BI
- Creating visualization through Tableau and Power BI
- Creating Dashboard through Tableau/Power BI

Syllabus

What is Data Visualization, Power of Data Visualization, Scope of Visual Analytic, Data Visualization. What is Tableau. What is Business Intelligence? What is Power BI? Why use Power BI? Installation of Tableau and Power BI. Tableau Architecture, Power BI Architecture.

Connect with data source, understanding of data, tables, fields, Join & Union, Sorting, Concatenating, Data Filters, Connection Types, Split fields, Formatting. What are the filters? Name the different filters in Tableau. What are the different joins in Tableau? What is the difference b/w Live and Extract? Connect to Multiple Excel Sheets, Get Data from Excel Files, Get Data from Text Files, Load Data from Multiple Data Sources. Remove Unwanted Columns from Tables Number Functions, String Functions, Date Functions, Type Conversion Functions, Aggregate Functions, Logical Functions, Area Chart, Bar Chart, Donut Chart, Line Chart, Map, Tables, Heap Map, Map, Card, Clustered Bar Chart, Clustered Bar Chart, Dashboard.

Introduction Connect Desktop with BI Service or Pro, Publish Desktop Reports, create a Workspace, Creating a Dashboard, Dashboard Actions, Add Reports to a Dashboard, Add Title to Dashboard, How to Add Image to Dashboard, Add Video to Dashboard, Add Web Content to Dashboard, Dashboard Settings.

Organization of course

Total contact hrs 36		
1st week:	10 hrs (classes)	2hrs (self-study/project)
2nd week:	10 hrs (classes)	2hrs (Mid term exam/assessment/discussion)
3rd week:	10 hrs (classes)	2hrs (End term exam)

Mode of lectures: online lecture/online videos/case study/ discussion/ workshop/ hands-on

Course Plan

Lecture no.	Topic	Lecture mode	Instructor
L: 1-6	Understanding Data Science, Role of Data visualisation in Data Science. Software Installation, Familiar with Software like Tableau and Power BI	Theory and Practical	Theory by Dr. Ramesh C. Poonia & Dr. Vaibhav Bhatnagar
L: 7-12	Data Filtering and Data Visualization	Theory and Practical	Theory by Dr. Linesh Raja & Practical by Dr. Vaibhav Bhatnagar
L: 13-18	Creating customizing Dashboard.	Theory and Practical	Theory by Dr. Linesh Raja & Practical by Dr. Vaibhav Bhatnagar

Brief profile of the instructor

1. Dr. Vaibhav Bhatnagar

Dr. Vaibhav Bhatnagar working as Assistant Professor (Senior Scale) in Department of Computer Applications, Manipal University. His field of expertise are Data Science, Machine Learning and Data visualization. He has published more than 20 research papers, and all are in Scopus or Web of Science indexed. One of his research papers is published in 7 impact factor with Q1 SCI Journal. His current google citation is 320. He has also completed many research projects funded SERB MATRICS (New Delhi), Department of Science and Technology, Rajasthan and Seed Grant Funded by Manipal University Jaipur. He is also supervising scholars. He has proficiency in R, Orange, Medcalc, Tableau and MS Power BI.

2.Dr. Linesh Raja

Dr Linesh Raja is working as Assistant Professor (Selection Grade) in the Department of Computer Application at School of Basic Sciences, Manipal University Jaipur. He is also working as guest editor of different Scopus and SCI indexed Journals. His expertise are in the field of machine learning, deep learning and IoT. His current google citation is more 1000. He has published more than 20 research papers, and all are in Scopus or Web of Science indexed.

3. Dr. Ramesh C. Poonia

Ramesh Chandra (Poonia) completed Postdoctoral Fellowship from Cyber-Physical Systems Laboratory (CPS Lab), Department of ICT and Natural Sciences, Norwegian University of Science and Technology (NTNU), Alesund, Norway, and he also completed Part-Time Post-Doctoral Fellowship from on the International Collaborative Project of Prediction Model for Pandemic Disease using Machine Learning of Okland University USA and Imam University, Saudi Arabia. He has received his Ph.D. degree in Computer Science from Apaji Institute of Mathematics & Applied Computer Technology, Banasthali University, Banasthali, India in July 2013. He has also completed Master of Technology (M. Tech.) in Data Science & Engineering, Work Integrated Learning Programme (WILP) from Birla Institute of Technology and Science, Pilani (BITS Pilani), India. He is currently working as Associate Professor at Department of Computer Science, CHRIST (Deemed to be University), Bangalore, India. His research interests are Sustainable Technologies, Cyber-Physical Systems, Computational Intelligence, and Network Protocol Evaluation. He is Chief Editor of TARU Journal of Sustainable Technologies and Computing (TJSTC) and Associate Editor of the Journal of Sustainable Computing: Informatics and Systems, Elsevier. He also serves in the editorial boards of a few international journals. He is main author and co-author of 06 books and an editor of more than 25 special issues of journals and books including Springer, CRC Press – Taylor and Francis, Inderscience, IGI Global and Elsevier, edited books and Springer

conference proceedings and has authored/co-authored over 75 research publications in peer-reviewed reputed journals, book chapters and conference proceedings. Moreover, he is a regular reviewer for international journals and conferences. He also serves as Conference Chair of Conference Series, International Conference on Sustainable Computing in Science, Technology and Management (SUSCOM-20XX). He has endorsed with the prestigious 'Faculty Appreciation Award' in 2013 for commendable services. H-index as of May 2022 is 22 according to Google Scholar.