MIT-ADT
UNIVERSITY
PUNE, INDIA
A Leap Towards The World Class Education
Approved by Govt. of Maharashtra
Recognized by UGC, New Delhi

MIT COLLEGE OF MANAGEMENT

Department Of Bachelors of Computer Applications :

LAB MANUAL

Fundamental of data Analytics

PROGRAMMING LAB

INDEX OF EXPEREMENTS

Week	Theory/ Practical (Group-I/ II)		Topic Covered Date and Remarks		
	Practical Day	Topics/ Programs	Date	HOD	Director Principal
1st		Introduction to python programming			
2nd To 7nd	1 2 3	Pandas ● Reading Data set through pandas. ● Getting basic information. ● Basic information of pandas library.			
8nd	4 5 6	EDA through PANDAS ● Finding missing values ● Imputing values ● Deleting / treatment of null values			
9th	7. 8.	Data visualization With MatplotLIB -Line Chart - Bar Chart - Histogram - Box plot - Violin plot			
		- Scatter plot - Hue semantic - Bubble plot - Pie Chart Advance Visualization with Seaborn			

12th	9	• Analyze Data Distributions: • Explore Relationships: • Manipulate Data: • Visualize Insights			
15th	10	**Hypothesis testing.** • Aim: To understand null Hypothesis and alternative hypotheses • T-tests: • ANOVA: • Chi-square test: Spearman correlation			
18th	19	Time Series Analysis			
20th	20	• Time series data and components • ARIMA models Forecasting,			
22th	21	To develop understanding of Machine learning Algorithms: Support Vector Machines (SVM): Ensemble learning (Random Forest, Gradient Boosting): Model evaluation,			
24th	22 23	Introduction to Tableau • Basic information of canvas and different panes Project on analysis			

Preface

This manual will introduce you to the Python programming language. It's aimed at beginning programmers, but even if you've written programs before and just want to add Python to your list of languages, It will get you started. Python is a powerful high-level, object-oriented programming language created by Guido van Rossum. It has simple easy-to-use syntax, making it the perfect language for someone trying to learn computer programming for the first time.This practical manual will be helpful for students of all BCA streams for better understanding the course from the point of view of applied aspects. Though all the efforts have been made to make this manual error free, yet some errors might have crept in inadvertently. Suggestions from the readers for the improvement of the manual are most welcomed.

1. Lab Objectives:

To write, test, and debug simple Python programs.

To implement Python programs with conditionals and loops.

Use functions for structuring Python programs.

Represent compound data using Python lists, tuples, and dictionaries.

Read and write data from/to files in Python.

2. Lab Outcomes:

Upon completion of the course, students will be able to

Write, test, and debug simple Python programs.

Implement Python programs with conditionals and loops.

Develop Python programs stepwise by defining functions and calling them.

Use Python lists, tuples, dictionaries for representing compound data.

Read and write data from/to files in Python.

3. Introduction about lab:

Minimum System requirements:Processors: Intel Atom® processor or Intel® Core™ i3 processor.

Disk space: 1 GB.

Operating systems: Windows* 7 or later, macOS, and Linux.

Python* versions: 2.7.X, 3.6.X.,3.8.X, 3.9.X.

A. General laboratory instructions :

1. Students are advised to come to the laboratory at least 5 minutes before (to the starting time), those who come after 5 minutes will not be allowed into the lab.
2. Plan your task properly much before the commencement, come prepared to the lab with the synopsis / program / experiment details.
3. Student should enter into the laboratory with:

a. Laboratory observation notes with all the details (Problem statement, Aim, Algorithm, Procedure, Program, Expected Output, etc.,) filled in for the lab session.

b. Laboratory Record updated up to the last session experiments and other utensils (if any) needed in the lab. c. Proper Dress code and Identity card.

4. Sign in the laboratory login register, write the TIME-IN, and occupy the computer system allotted to you by the faculty.
5. Execute your task in the laboratory, and record the results / output in the lab observation notebook, and get certified by the concerned faculty.
6. All the students should be polite and cooperative with the laboratory staff, and must maintain discipline and decency in the laboratory.
7. Computer labs are established with sophisticated and high end branded systems, which should be utilized properly.
8. Students / Faculty must keep their mobile phones in SWITCHED OFF mode during the lab sessions. Misuse of the equipment, misbehavior with the staff and systems etc., will attract severe punishment.
9. Students must take the permission of the faculty in case of any urgency to go out; if anybody found loitering outside the lab / class without permission during working hours will be treated seriously and punished appropriately.
10. Students should LOG OFF/ SHUT DOWN the computer system before he/she leaves the lab after completing the task (experiment) in all aspects. He/she must ensure the system / seat is kept properly.

DO’S AND DON'TS

Do’s

1. Conform to the academic discipline of the department.

2. Enter your credentials in the laboratory attendance register.

3. Read and understand how to carry out an activity thoroughly before coming to the laboratory.

4. Ensure the uniqueness with respect to the methodology adopted for carrying out the experiments.

5. Shutdown the machine once you are done using it.

Don'ts

1. Eatables are not allowed in the laboratory.

2. Usage of mobile phones is strictly prohibited.

3. Do not open the system unit casing.

4. Do not remove anything from the computer laboratory without permission.

5. Do not touch, connect or disconnect any plug or cable without your faculty/laboratory technician’s permission.