MCA 407(A) Open Source Lab - Python

1. Data Types and Data Structures :

Introduction to Python: - using the Python interpreter, Overview of programming in Python, Python built-in types, Arithmetic in Python, Program input and Program output, Variables and assignment.

Strings and string operations, List basics, List operations, Dictionaries, Dictionary basics and Tuples,

(a) Simple programs using elementary data items, lists, dictionaries and tuples.

2. Control Structures:

Control Statements:-if statements, while statement, for statements, functions, formal arguments, variable-length arguments, Exceptions, detecting and handling exceptions.

(a) Programs using conditional branches, loops.

(b) Programs using functions

(c) Programs using exception handling

3. Classes ,files and modules

Introduction to Classes and Objects:-classes, class attributes, instances, instance attributes, binding and method invocation, inheritance, polymorphism, Built-in functions for classes and instances.

Files and input/output, reading and writing files, methods of file objects, using standard library functions, dates and times

- (a) Programs using classes and objects
- (b) Programs using inheritance
- (c) Programs using polymorphism
- (d) Programs to implement file operations.
- (e) Programs using modules.

4. Database and web programming

Python database application programmer's interface (DB- API), connection and cursor objects, Type objects and constructors, python database adapters.

Creating simple web clients, introduction to CGI, CGI module, building CGI applications, python web application frameworks: django .

- (a) Programs using python database API.
- (b) Programs for creating simple web pages.
- (c) Programs for creating dynamic and interactive web pages using forms.

5. Development of sample web applications using python.

Sample applications may include

- i) Web based polling
- *ii) Social networking site*
- *iii) Online transaction system*
- iv) Content management system

References

1. Core Python Programming by Wesley J. Chun, 2nd Edition , Pearson Education

2. An Introduction to Python by Guido Van Russom, Fred L.Drake, Network Theory Limited.

3. Beginning Python: From Novice To Professional By Magnus Lie Hetland, Second Edition Apress

4. Programming in Python 3 by Mark Summerfield, Pearson Education

Websites :

Online version of An Introduction To Python http://www.network-theory.co.uk/docs/pytut/

online python tutorials <u>http://docs.python.org/tutorial/</u> <u>http://zetcode.com/tutorials/pythontutorial/</u> <u>http://www.sthurlow.com/python/</u> <u>http://www.tutorialspoint.com/python/</u>

A site for django resources http://www.djangoproject.com/ Online book on django Framework http://www.djangobook.com/



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