Seminar session 4

An intro to Python programming and MySQL database management system

Intro to Python:

- ➔ Python began in 1989
- ➔ high level – scripting language
- ➔ Supports object oriented prgramming
- ➔ Scalable – pluggable & modular architecture
- ➔ Extensible – sore security modules can be writte in in another language
- ➔ Portable across multiple architectures and operationg systems – ANSI C compiler
- ➔ Easy to learn – few keywords
- ➔ Easy to read – understandable to a non programmer
- ➔ Easy to maintain

Output → print (xy)

Input → user = raw_input("Here could be your advertising")
print (user)

Comments:

- ➔ # Here could be your advertising
- ➔ print(„xy“) # Here could be your advertising

Operators:

+-*/ // % **

<; <=; >;>=; ==; !=; <>

and or not (Boolean)

Variables and assignments:

- ➔ case sensitive
- ➔ no pre-declaration
- ➔ type (and value) are assigned during initialisation
- ➔ equal sign are used for assignments

List and Tuples:

- ➔ Generic arrays used to hold a Python objects
- ➔ Items are ordered and are accessible via index offsets
- ➔ Lists are enclosed in brackets ([]) and their elements can be changed
- ➔ Tuples are enclosed in parenthesis (()) and cannot be updated – they are read-only
- ➔ Subsets of can be taken with slice operators ([]) and ([:])

Dictionaries:

- ➔ "dict"for short
- ➔ Made up of key-value pairs
- ➔ Keys are numbers of strings
- ➔ Enclosed by curly brackets ({})

Looping over dictionaries:

```
for key in aDict:
    print(key, aDict[key])
```

Conditional statements:

if, elif and else, while, for

Classes:

- A core part of OOP and servers as the container for related data and logic
- They provide a mechanism for creating objects called instances
- Have attributes
- Have optional documentation string
- May have methods (functions) declarations

Modules:

- ➔ A logical way to physically organize and distinguish related Python code into individual files.
- ➔ May contain executable code, functions, classes.

MySQL:

- ➔ A database requires a database management system
- ➔ MySQL is a Structured Query Language(SQL) based relational database management system
- ➔ MySQL is compatible with standard SQL

show databases; → show available databases

use “database”; → change to database named “database”

show tables; →show the tables in the database

describe “table”; → show the structure of the table named “table”

select * from “table”; → show all content of the table

select * from “table” where id=5; → filter the table

select * from “table”a, “table” b where a.id=b.id; → combine 2 tables where a.id=b.id

Database modification:

update” table” set column = “Yes” where id=3;

Database and tables creating:

CREATE DATABASE databasename;

CREATE TABELE tablename (column1 INT , column VARCHAR (255));

Database design considerations:

Content → Data to be stored and associated cost

Access → Security to ensure who have access to what data

Logical structure → Assembling the data to make sense to the user

Physical organization → The physical location of data storage