

# INF2611

May/June 2017

## VISUAL PROGRAMMING II

Duration : 2 Hours

70 Marks

**EXAMINERS :**

FIRST :

MS E LEUS

SECOND :

MRS A MATHEW

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**Closed book examination.**

**This examination question paper remains the property of the University of South Africa and may not be removed from the examination venue.**

This examination question paper consists of 6 pages.

**Instructions:**

- Answer all the questions in the answer book.
- Answers in pencil will not be marked.
- The marks are provided in brackets next to the questions.
- Enjoy!

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**Question 1: Menus and Widgets (12)**

1.1. A menu bar consists of several menus, each of which consists of several entries. Describe two methods on how to add entries in the menu bar. (4)

1.2. Dock widget

a) Which class is used to create a dock widget? (1)

b) What is the purpose of using a dock widget? (2)

c) List the four allowable dock areas of the dock widget. (4)

d) Is the following statement true or false? (1)

The user can drag a dock window out of the dock area entirely so that it becomes a free-floating window.

**Question 2: Database handling (18)**

2.1. For your assignment project for this subject you connected your GUI application to a database. What are the advantages of connecting an application to a database? (4)

2.2. Provide a short description of each of the following MySQL data types: (4)

- Smallint
- Char
- Varchar
- Longblob

2.3. The Python code for creating a database table with four columns is as follows:

```
createtable.py
import sys
import MySQLdb
conn=MySQLdb.connect(host="localhost", user="root", passwd="psw",
db="database")
cursor=conn.cursor()
try:
    cursor.execute("""
    create table products (prod_id smallint NOT NULL,
    prod_name char(50),
    quantity smallint,
    price float)
    """)
except MySQLdb.Error:
    print ("Error in creating products table")
    sys.exit(1)
cursor.close()
conn.close()
```

One of the methods used in the code is `connect()`, which establishes a connection to the database server.

2.3.1. Provide the four parameters required for the `connect()` method. (4)

2.3.2. Give and explain the remaining three database-related methods in the code. (6)

**Question 3: Console-based database handling (25)**

The following table was created in the database called `bookstore`:

Tables_in_bookstore
books

Field	Type	Null	Key	Default	Extra
book_isbn	smallint(6)				
book_name	char(50)				
quantity	smallint(6)				
price	float				

3.1. Provide the code that will insert the given record as a new row into the table and print a message that states that one row was added to the `books` table. (5)

book_isbn	book_name	quantity	price
978409506	Python for you	1	100

```
insertrec.py
import MySQLdb
conn=MySQLdb.connect(host="localhost", user="root", passwd="psw",
db="bookstore")
cursor=conn.cursor()
cursor.execute("""
.....
.....
.....
cursor.close()
conn.commit()
conn.close()
```

Output:  
One row inserted into the books table

**3.2 Provide the code for retrieving the rows from the `books` table.**

The program should also provide an error message if the `books` table has no entries. (10)

```
disprecl.py
import sys
import MySQLdb
conn=MySQLdb.connect(host="localhost", user="root", passwd="psw",
db="books")
cursor=conn.cursor()
.....
.....
.....
.....
.....
sys.exit(1)
cursor.close()
conn.close()
```

Output :

Book ISBN	Book Name	Quantity	Price
978409506	Python for you	1	100

**3.3. Provide the code for searching for a record in the `books` table according to the**

`book_isbn`. The `book_isbn` is entered by the user. The program should also provide a message if the `book_isbn` is not found. (10)

```
sqlenquiry.py
import MySQLdb
conn=MySQLdb.connect(host="localhost", user="root", passwd="psw",
db="books")
cursor=conn.cursor()
.....
.....
.....
.....
cursor.close()
conn.close()
```

Output :

```
Enter Book ISBN: 978409506
Information of the Book with ISBN 978409506 is as follows:
ISBN: 978409506, Book Name: Python for you, Quantity: 1, Price:
100
```

OR

```
Enter Book ISBN: 978409500
Sorry no Book found with ISBN 978409500
```

**Question 4: GUI-based database handling (15)**

- 4.1. Which class is required to integrate databases with PyQt? (1)
- 4.2. Describe any four methods of the class used to integrate databases with PyQt (8)
- 4.3. Explain how to display all the rows of a database table in tabular format in a GUI application. (2)
- 4.4. Name and describe two methods of the QSqlTableModel class that are used to display rows that are fetched from a database table. (4)

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