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# COMPUTER SCIENCE INVESTIGATORY PROJECT

TOPIC: **"QUIZ MANAGEMENT SYSTEM"**

| | |
|---|---|
| SUBMITTED BY | **V.ROOPAK** |
| ROLL NO. | |

# CERTIFICATE

**This is to certify that V.ROOPAK**

**(Exam roll number:_____)**

**has successfully completed his investigatory project on " QUIZ MANAGEMENT SYSTEM " for Computer Science.**

**As prescribed for class Xll by the Central BoardSecondary Examination, New Delhi, in the Computer Laboratory of this school in the year 2024-2025.**

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**SUBJECT - INCHARGE & INTERNAL EXAMINER**
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**EXTERNAL EXAMINER**

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**V.ROOPAK**
**XII - A**

# Index


| S.NO | TOPIC | PAGE NO |
|---|---|---|
| 1) | **ABOUT PYTHON** | **1-2** |
| 2) | **ABOUT MYSQL** | **3-4** |
| 3) | **FEASIBILITY** | **5-6** |
| 4) | **INTRODUCTION** | **7** |
| 5) | **SYSTEM DEVELOPMENT LIFE CYCLE (SDLC)** | 8 |
| 6) | **HARDWARE AND SOFTWARE REQUIREMENTS** | 9 |
| 7) | **SOURCE CODE** | 10-12 |
| 8) | **OUTPUT** | 13-15 |
| 9) | **DATABASE AND TABLE** | 16 |
| 9) | **TESTING** | 17-19 |
| 10) | **RESOURCE** | 20 |

# ABOUT PYTHON




Python is a general-purpose high-level programming language. It is an open source language, released under a GPL-Compatible license. Python Software Foundation (PSF), a non-profit organization, holds the copy-right of python. Guido Van Rossum conceived python in the late 1980s. It was released in 1991 at Centrum Wiskunde & Informatica (CWI) in the Netherlands as a successor to the ABC language. He named this language after a popular comedy show called „**Monty Python‟s Flying Circus‟** (and not after python - the snake). In the last few years, it‟s popularity has increased immensely. According to stackoverflow.com‟s recent survey, python is in the top ten most popular technologies in 2018. It is also dynamically-typed because it carries out type-checking at run time. It does so to make sure that the type of construct matches what we except it to be. The distinctive feature of python is that it is an interpreted language. The Python IDLE (Integrated Development & Learning Environment) executes instruction one line at a time. The python programming language is one of the richest languages.

# Features of Python

1. **Easy :-**
   Python is a very easy to learn and understand; using this python tutorial, any beginner can understand the basics of python.

2. **Interpreted :-**
   It is interpreted (executed) line by line. This makes it easy to test and debug.
3. **Object Oriented :-**
   The python programming language supports classes and objects.
4. **Free and Open-Source :-**
   The language and it‟s source code are available to the public for free;
   there is no need to buy a costly license.
5. **Portable :-**
   Since it is open source, we can run python on windows, mac, linux, or any other platforms. Our programs will work without needing to the changed for every machine.
6. **GUI (Graphical User Interface) programming :-**
   We can use it to develop a GUI (Graphical User Interface). One way to do this is through „**Tkinter**‟.
7. **Large Library :-**
   Python provides us with a large standard library. We can use it to implement a variety of functions without needing to reinvent the wheel every time. Just pick the code we need and continue. This lets us to focus on other important tasks.

# About MYSQL




MySql is a fast, easy to use RDBMS (Relational Database Management System) being used for many small and big businesses. MySql is developed, marketed and supported by MySQL AB, which is a Swedish Company.

MySql is becoming is so popular because of many good reasons :-

- MySql is released under an open-source language. So we have nothing to pay to use it.
- MySql is a very powerful program in it‟s own right. It handles a large subset of the functionality of the most expensive and powerful database packages.
- MySql uses a standard form of the well-known SQL data language.

- MySql works on many operating system and with many languages including PHP, PERL, C, C++, JAVA, etc.
- MySql works very quickly and works well even with Large data sets
- MySql is very friendly to PHP, the most appreciated language for web development.
- MySql supports large databases, up to 50 million rows or more in a table. The default file size limit for a table is 4 GB, but we can increase this (if our operating system can handle) to a theoretical limit of 8 millions Tera-Bytes (TB).
- MySql is customizable. The open-source GPL license allows programmers to modify the MySql software to fit their own specific environments.

# Feasibility Study

The quiz application is a highly feasible project with several strengths that ensure it can be implemented effectively and extended for future use:

1. **Technical Feasibility**:
    - The program uses Python, a versatile programming language, and integrates with MySQL, a widely-used database system. Both tools are readily available and well-supported, making the technical implementation straightforward.
2. **Operational Feasibility**:
    - The menu-driven interface ensures ease of use, allowing users to navigate the system without difficulty. It caters to both new and returning users, ensuring a smooth user experience.
3. **Functional Feasibility**:
    - Core features like user registration, score tracking, and random question selection are functional and effectively designed. The ability to update and store scores enhances the application's usability.

4. **Security Feasibility**:
    - While the current system requires improvements to mitigate SQL injection and validate inputs, implementing parameterized queries and stricter input checks is straightforward, ensuring a secure setup.

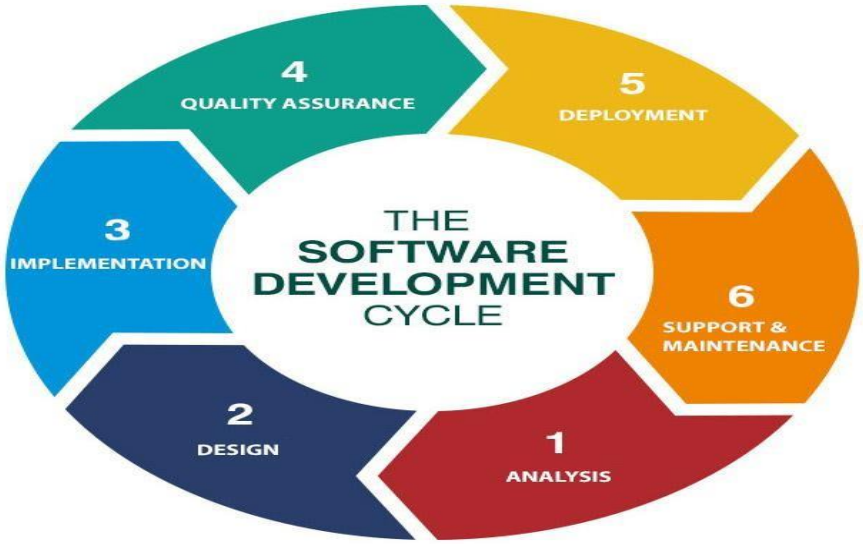
## Conclusion:

The quiz application is a feasible and practical project that can be deployed successfully with minimal adjustments. Its robust functionality, combined with scalability and adaptability, ensures it meets both current and future needs effectively.

# INTRODUCTION

- *Quiz management system is based on popular reality quiz shows where a player has to answer some questions based on various themes. The player gets to choose the correct answer from four different sets of options. If the player chooses the right option he gets one point and proceeds. If the option was wrong no points will be allotted.*
- *Quiz Competitions are other events where similar mechanism is used. Programming language used for this projects are python and MySQL. Whole program is on python whereas database is stored on MySQL server database. Upon running the program,*

# SYSTEM DEVELOPMENT LIFE CYCLE (SDLC)




*The systems development life cycle is a project management technique that divides complex projects into smaller, more easily managed segments or phases. Segmenting projects allows managers to verify the successful completion of project phases before allocating resources to subsequent phases. Software development projects typically include initiation, planning, design, development, testing, implementation, and maintenance phases. However, the phases may be divided differently depending on the organization involved. For example, initial project activities might be designated as request, requirements-definition, and planning phases, or initiation, concept-development, and planning phases. End users of the system under development should be involved in reviewing the output of each phase to ensure the system is being built to deliver the needed functionality*

# System Requirements

## #SOFTWARE SPECIFICATION

Operating System: Windows 10/8/7

Platform : Python IDLE 3.7/3.8

Database : MySQL

Languages :Python

## #HARDWARE SPECIFICATION

Processor : Dual core or above

Hard Disk : 40 GB

RAM : 1024 MB

# SOURCE CODE

```
import random
import mysql.connector as mysql
obj=mysql.connect(host="localhost",user="root",password="roopak2007",database="quiz")
curobj=obj.cursor()
def quizstart():
  print("1.NEW USER")
  print("2.OLD USER")
  user=int(input("enter your choice "))
  if user==1:
    ID=int(input("create your userID:"))
    name=input("enter your name :")
    sql="INSERT INTO USER VAlUES({},'{}',0)".format(ID,name)
    curobj.execute(sql)
    obj.commit()
  elif user==2:
    ID=int(input("enter your ID:"))
    try:
     sql1="SELECT * FROM  USER WHERE USER_ID={}".format(ID)
     curobj.execute(sql1)
     res=curobj.fetchone()
     print("Welcome back",res[1])
    except:
      print("USER ID NOT FOUND")
      return
```

```
score=0
while True:
    SQL="SELECT * FROM QUESTION"
    curobj.execute(SQL)
    data=curobj.fetchall()
    qno=random.randint(0,len(data)-1)
    currqno=data[qno]#current question
    print(currqno[1])
    s=[currqno[2],currqno[3],currqno[4],currqno[5]]
    random.shuffle(s)
    options = ["A", "B", "C", "D"]
    for i in range(len(s)):
        print(options[i]+".",s[i])
    ans=input("enter your option:")
    if ans in options:
        if options.index(ans)==s.index(currqno[2]):
                score += 1
                print("CORRECT ANSWER")

        else:
            print("Incorrect answer")
    else:
            print("Invalid option. Please enter A, B, C, or D.")
    cho=input("DO YOU WANT TO CONTINUE (Y/N):")
    if cho.upper()=="N":
        sql = "UPDATE user SET score = %s WHERE USER_ID = %s"
        curobj.execute(sql, (score, ID))
        obj.commit()
        break
```

```
def score():
    user_id = input("Enter your ID: ")
    sql = "SELECT score FROM user WHERE USER_ID = {}".format(user_id)
    curobj.execute(sql)
    result = curobj.fetchone()
    if result:
        print("Your current score is:", result[0])
    else:
        print("User ID not found. Please try again! ")
while True:
    print("*****************************************************************************************************")
    print("MENU")
    print("1.TO START THE QUIZ")
    print("2.TO SEE  SCORE")
    print("3.TO EXIT")
    print("*****************************************************************************************************")
    cho = int(input("enter your choice:"))
    if cho == 1:
        quizstart()
    elif cho == 2:
        score()
    elif cho ==3:
        print("Exiting... Goodbye! ")
        break
```

# OUTPUT

## 1.To Play Quiz as New user

```
**********************************************************************
MENU
1.TO START THE QUIZ
2.TO SEE  SCORE
3.TO EXIT
**********************************************************************
enter your choice:1
1.NEW USER
2.OLD USER
enter your choice 1
create your userID:106
enter your name :Tarun
Which data structure does Python use for key-value pairs?
A. List
B. Tuple
C. Set
D. Dictionary
enter your option:D
CORRECT ANSWER
DO YOU WANT TO CONTINUE (Y/N):N
```

# 2.To Play Quiz as Old user

```
**********************************************************************
MENU
1.TO START THE QUIZ
2.TO SEE  SCORE
3.TO EXIT
**********************************************************************
enter your choice:1
1.NEW USER
2.OLD USER
enter your choice 2
enter your ID:106
Welcome back Tarun
Which of the following is a conditional statement in Python?
A. if
B. switch
C. case
D. when
enter your option:A
CORRECT ANSWER
DO YOU WANT TO CONTINUE (Y/N):Y
Which keyword is used to handle exceptions in Python?
A. except
B. catch
C. finally
D. try
enter your option:D
CORRECT ANSWER
DO YOU WANT TO CONTINUE (Y/N):N
```

# 3.To See Score

```
**********************************************************************************************
MENU
1.TO START THE QUIZ
2.TO SEE  SCORE
3.TO EXIT
**********************************************************************************************
enter your choice:2
Enter your ID: 106
Your current score is: 2
```

# 4.To exit

```
**********************************************************************************************
MENU
1.TO START THE QUIZ
2.TO SEE  SCORE
3.TO EXIT
**********************************************************************************************
enter your choice:3
Exiting... Goodbye!
```

# DATABASE AND TABLE

```
mysql> select * from question;
+-----+-----------------------------------------------------+-----------+---------+-----------+---------+
| SNO | QUEST                                               | CORRECT_ANS | OPTION_A | OPTION_B | OPTION_C |
+-----+-----------------------------------------------------+-----------+---------+-----------+---------+
|   1 | What is the correct file extension for Python files? | .py       | .python | .pt       | .txt    |
|   2 | Which of these is an immutable data type in Python? | Tuple     | List    | Dictionary | Set     |
|   3 | Which keyword is used to define a function in Python? | def     | func    | lambda    | method  |
|   4 | Which of the following is a conditional statement in Python? | if | switch  | case      | when    |
|   5 | Which of the following is used to import a module in Python? | import | load | include | require |
|   6 | Which mode is used to open a file for reading in Python? | r | w | a | x |
|   7 | Which keyword is used to handle exceptions in Python? | try | catch | finally | except |
|   8 | Which data structure does Python use for key-value pairs? | Dictionary | List | Tuple | Set |
|   9 | Which keyword is used to create a class in Python? | class | object | struct | module |
|  10 | Which of the following represents a loop in Python? | while | for | do | repeat |
+-----+-----------------------------------------------------+-----------+---------+-----------+---------+
10 rows in set (0.02 sec)
```

```
mysql> select * from user;
+---------+-----------+-------+
| USER_ID | NAME      | SCORE |
+---------+-----------+-------+
|     101 | David     |     4 |
|     102 | RAM       |     3 |
|     103 | Rohit     |     1 |
|     104 | sashwanth |     0 |
|     105 | Dev       |     0 |
|     106 | Tarun     |     2 |
+---------+-----------+-------+
6 rows in set (0.00 sec)
```

S

# TESTING

Software Testing is an empirical investigation conducted to provide stakeholders with information about the quality of the product or service under test[1] , with respect to the context in which it is intended to operate. Software Testing also provides an objective, independent view of the software to allow the business to appreciate and understand the risks at implementation of the software. Test techniques include, but are not limited to, the process of executing a program or application with the intent of finding software bugs.

It can also be stated as the process of validating and verifying that a software program/application/product meets the business and technical requirements that guided its design and development, so that it works as expected and can be implemented with the same characteristics. Software Testing, depending on the testing method employed, can be implemented at any time in the development process, however the most test effort is employed after the requirements have been defined and coding process has been completed.

## TESTING METHODS

Software testing methods are traditionally divided into black box testing and white box testing. These two approaches are used to describe the point of view that a test engineer takes when designing test cases.

## BLACK BOX TESTING

Black box testing treats the software as a "black box," without any knowledge of internal implementation. Black box testing methods include: equivalence partitioning, boundary value analysis, all-pairs testing, fuzz testing, model-based testing, traceability matrix, exploratory testing and specification-based testing.

## SPECIFICATION-BASED TESTING

Specification-based testing aims to test the functionality of software according to the applicable requirements.[16] Thus, the tester inputs data into, and only sees the output from, the test object. This level of testing usually requires thorough test cases to be provided to the tester, who then can simply verify that for a given input, the output value (or behaviour), either "is" or "is not" the same as the expected value specified in the test

case. Specification-based testing is necessary, but it is insufficient to guard against certain risks

## ADVANTAGES AND DISADVANTAGES

The black box tester has no "bonds" with the code, and a tester's perception is very simple: a code must have bugs. Using the principle, "Ask and you shall receive," black box testers find bugs where programmers don't. But, on the other hand, black box testing has been said to be "like a walk in a dark labyrinth without a flashlight," because the tester doesn't know how the software being tested was actually constructed.

That's why there are situations when (1) a black box tester writes many test cases to check something that can be tested by only one test case, and/or (2) some parts of the back end are not tested at all. Therefore, black box testing has the advantage of "an unaffiliated opinion," on the one hand, and the disadvantage of "blind exploring," on the other.

## WHITE BOX TESTING

White box testing, by contrast to black box testing, is when the tester has access to the internal data structures and algorithms (and the code that implement these)

## *Types of white box testing: -*

The following types of white box testing exist:

- api testing - Testing of the application using Public and Private APIs.
- Code coverage - creating tests to satisfy some criteria of code coverage.

For example, the test designer can create tests to cause all statements in the program to be executed at least once.

- Fault injection methods.
- Mutation testing methods.

- Static testing - White box testing includes all static testing.

# CODE COMPLETENESS EVALUATION

White box testing methods can also be used to evaluate the completeness of a test suite that was created with black box testing methods. This allows the software team to examine parts of a system that are rarely tested and ensures that the most important function points have been tested.

## *Two common forms of code coverage are:*

- Function Coverage: Which reports on functions executed and
- Statement Coverage: Which reports on the number of lines executed to complete the test?

***They both return coverage metric, measured as a percentage***

# RESOURCES

- **Computer Science with Python –**
  **Class XII – By : Sumita Arora**

- **Real Python - Python and MySQL Database Tutorial**

  **Comprehensive tutorials on using Python to interact with MySQL databases, covering both beginner and advanced topic**

- **Website: https://www.w3schools.com**