Global Scientific JOURNALS

GSJ: Volume 9, Issue 4, April 2021, Online: ISSN 2320-9186

www.globalscientificjournal.com

ONLINE EXAMINATION TEST GENERATOR FOR INTELLIGENT PLACEMENT TO ENHANCING RWANDA EDUCATION SYSTEM QUALITY

DUSENGIMANA JEAN DE DIEU

Abstract

The project "**ONLINE EXAMINATION TEST GENERATOR FOR INTELLIGENT PLACEMENT TO ENHANCING RWANDA EDUCATION SYSTEM QUALITY**"Is useful to reduce the complexity and time in the job selection process by company. Nowadays Rwanda companies conducting different process to select a right candidate for right job. This project will helps the companies to select candidate for interview by conducting basic selection process through online. In this project Test Generator is software that is used to create a test or work with a question bank contains large number of questions. Company can create a new question bank or even add new questions to the existing question bank. Company also has the possibility to view the existing question bank.Registered company can upload their company details with this module and they can enter their company selection criteria for job recruit. Also they will feed their exam question paper into database. User can select their company and they will get the relevant question paper for that company. User has to complete the exam on time. The mark will be calculated by system and will pass to company. Mark scored in exam by candidate is maintained and it can be viewed by the relevant companies. Based on Mark Company will send call letter for interview to the candidate.

1. INTRODUCTION

System study started off with initial analysis of the existing system. The analysis is helpful in giving through understanding of the present system. The analysis of the existing system is also uncovered many flaws and elimination of flaws formed the major objective of the proposed system through knowledge well details the production terminologies and understood clearly before system design initiated. The study of existing system ended up with verifying the stock quantity to be issued with the request the database size was found to ever increasing & that the present set up of following manual method would not service long. This leads to the idea of introducing the DBMS in developing the software. this idea is appreciated when the database need hierarchical security & made going in for an DBMS inevitable due to various other reasons.

2. BACKGROUND STUDY

2.1 existing system

In the existing system all the activities that have to be taken place are done manually, which is a time consuming process. This may cause a great deal of mistakes to happen in the whole process. Manual mistakes may happen in the whole process, which may result in the duplication of data, which produces erroneous results.

The limited corrective capabilities for runtime errors may generate inaccurate results. It also requires more manpower to maintain all the required files. Generation of appropriate reports may also become a difficult task.

2.1.1 drawbacks of existing system

Report generation was very time consuming. There was a greater probability for typographical errors

- Report generation was very time consuming. There was a greater probability for typographical errors.
- Calculation was done manually, it involved errors.
- The whole operation was confusing.
- Time Consuming -The details of transactions also involves lot of time.
- Loss of Data - Chances of storing the files in other heads leads to loss of data.
- Errors may arise in transcription from source documents to the books.
-
- Security facilities are not available.
- Accuracy cannot be achieved.

2.2 proposed system

The proposed system is to computerize the existing system. The proposed system is developed using **ASP.Net** and **My SQL SERVER.** This new Website has been developed with menu driven approach.

The need of proposed system arises from the limitation of the existing system. This is a manual one. The proposed system maintains a centralized database, which can store the relevant information

The project ensures that the system Features meet the user requirements User requirements have been translated into system characteristics. If the existing system is used, it requires lot of time so the proposed system has certain objectives.

2.2.1 advantages of the proposed system

- There should be entry screens and reports to all modules.
- The information flow would be developed.
- Help messages, alerts, list of values would be provided making the project user friendly.
- Validations can be done at each level possible.
- Databases should be structured with minimum redundancy.
- System security is provided.
- Produces accurate results.
- Performs the right procedures properly.

3. SYSTEM DESIGN

The system has been designed in six steps which comprises of:

- **INPUT DESIGN**
- **CODE DESIGN**
- **OUTPUT DESIGN**
- **DATABASE DESIGN**
- **FORM DESIGN**
- **FILE DESIGN**
- **LAYOUT DESIGN**

3.1 Input Design

Input design is the process of connecting the user-originated inputs into a computer to used format. The goal of the input design is to make the data entry logical & free from errors. Errors in the input database controlled by input design. This application is being developed in a user-friendly manner.

The forms are being designed in such a way that during the processing the cursor is placed in the position where the data must be entered. An option of selecting an appropriate input from the values of validation is made for each of every data entered. Help managers are also provided whenever the user entry to a new field to that he/she can understand what is to be entered. Whenever the use r enter an error data, error manager displayed user can move to next field only after entering the connect data.

3.2 Output Design

The output form the system is either by screen or by hard copies. Output design aims at communicating the results of the processing of the users. The reports are generated to suit the needs of the users. The reports have to be generated with appropriate levels.

3.3 Database Design

The database design involves creation of tables. Tables are represented in physical database as stored files. They have their own independent existence. A table consists of rows and columns. Each column corresponds to a piece of information called field. A set of fields constitutes a record. The record contains all the information, specific to a particular item.

Table

Table is a fundamental structure of Relational Database Management System. In tables data is stored in rows (records) and columns (fields). The data is usually about a particular category of things, such as employees or books etc.,

Field

An element of a table that contains a specific item of information such as Account Code. A field is represented as a column.

Primary key

Collection of one (or) more fields whose value/values uniquely identifies a record in a table. This key is used to identify, each occurrence of an entity. It never has a null value.

Foreign key

One or more table fields that refer to the Primary Key field/fields of another table. A foreign key is used to create links with another entity.

Security

A set of features used to specify (or) restrict access to specified users (or) groups. Giving Passwords and Usernames to access the database may impose security.

database design

- **user registration**
  - **Table name: Registration**

Field name	Data type	Key description	Field description
regid	Int	Primary key	Register id
name	Varchar(20)	Not null	Name
add	Varchar(100)	Not null	Address
email	Varchar(20)	Not null	Email id
phno	Varchar(20)	Not null	Phone number

3.5 form design

Once the tables are created, the next step is to feed them with Squired data values. This is called database populations and can be achieved by forms design

Fact-Finding

- ***Fact-Finding Overview***
  - The first step is to identify the information you need
  - Develop a fact-finding plan
- ***Who, What, Where, When, How, and Why?***
  - Difference between asking what is being done and what could or should be done
- ***The Zachman Framework***
  - Zachman Framework for Enterprise Architecture
  - Helps managers and users understand the model and assures that overall business goals translate into successful IT project.

Some of the advantages of using Windows Forms include the following:

- ***simplicity and power:***

Windows Forms is a programming model for developing Windows applications that combines the simplicity of the Visual Basic 6.0 programming model with the power and flexibility of the common language runtime.

- ***lower total cost of ownership:***

Windows Forms takes advantage of the versioning and deployment features of the common language runtime to offer reduced deployment costs and higher application robustness over time. This significantly lowers the maintenance costs (TCO) for applications written in Windows Forms.

- ***architecture for controls:***

Windows Forms offers an architecture for controls and control containers that is based on concrete implementation of the control and container classes. This significantly reduces control-container interoperability issues.

- ***Security:***

Windows Forms takes full advantage of the security features of the common language runtime. This means that Windows Forms can be used implement everything from an untreated control running in the browser to a fully trusted application installed on a user's hard disk.

- ***xml web services support:***

Windows Forms offers full support for quickly and easily connecting to XML Web services.

- ***rich graphics:***

Windows Forms is one of the first ship vehicles for GDI+, a new version of the Windows Graphical Device Interface (GDI) that supports alpha blending, texture brushes, advanced transforms, rich text support, and more.

- ***flexible controls:***

Windows Forms offers a rich set of controls that encompass all of the controls offered by Windows. These controls also offer new features, such as "flat look" styles for buttons, radio buttons, and check boxes.

- ***licensing:***

Windows Forms takes advantage of the common language runtime enhanced licensing model.

- ***printing:***

Windows Forms offers a printing framework that enables applications to provide comprehensive reports.

- ***accessibility:***

Windows Forms controls implement the interfaces defined by Microsoft Active Accessibility (MSAA), which make it simple to build applications that support accessibility aids, such as screen readers.

3.6 file design

The conceptual structure of a Database is called schema. Schema shows the kind of data that exists in a database and how these are logically related to each other. A schema can be regarded as a blueprint that portrays, both, kind of data used in building a database and logical relationship, and must correctly represent their inter relationships. Schema is frequently depicted pictorially viz., Entity Relationship Diagrams (E-R Diagram), Data Flow Diagram (DFD) etc.,

The two design objectives continuously sought by developers are reliability and maintenance.

4.7 layout design

It is an arrangement of items on the output medium. The layouts are building a mockup of the actual reports or document, as it will appear after the system is in operation. The output layout has been designated to cover information. The outputs are presented in the appendix.

intelligible output design should improve the systems relationships with the user, and help in decision-making.

❖ ***Validation Checking***

The next level of checking is validation checking. Here the entire software is tested. The reference document for this process is he requirement and the goal is to see if the software meets its requirements. The requirement document reflects and determines whether the software functions the user expected. At the culmination of the integration checking, software is completely assembled as a package, interfacing and corrected and a final series of software test and validation test begins. The proposed system under construction has been tested by Using validation checking and found to be working satisfactory.

4. MODULES

1.1 Online registration

In this module company admin can register their company and they can create a separate account for their company. Exam attending candidate also register in this module to attend the exam.

4.2 Company details

Registered company can upload their company details with this module and they can enter their company selection criteria for job recruit. Also they will feed their exam question paper into database.

4.3 Question Generator

In this module question paper will get generated abased on the company id while candidate selecting the company. Each question paper main in database based on its question paper id.

4.4 Exam conductor

In this module user can select their company and they will get the relevant question paper for that company. User has to complete the exam on time. The mark will be calculated by system and will pass to company.

4.5 Mark Report

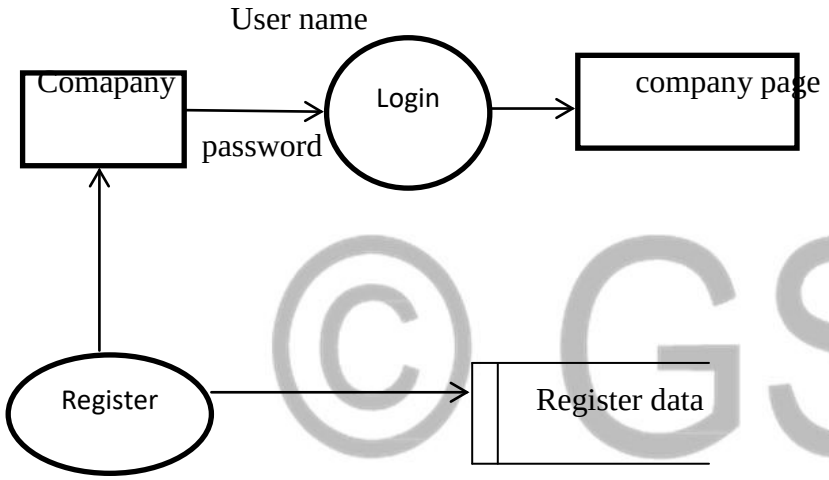
In this module mark scored in exam by candidate is maintained and it can be viewed by the relevant companies. Based on Mark Company will send call letter for interview to the candidate.

Selection:

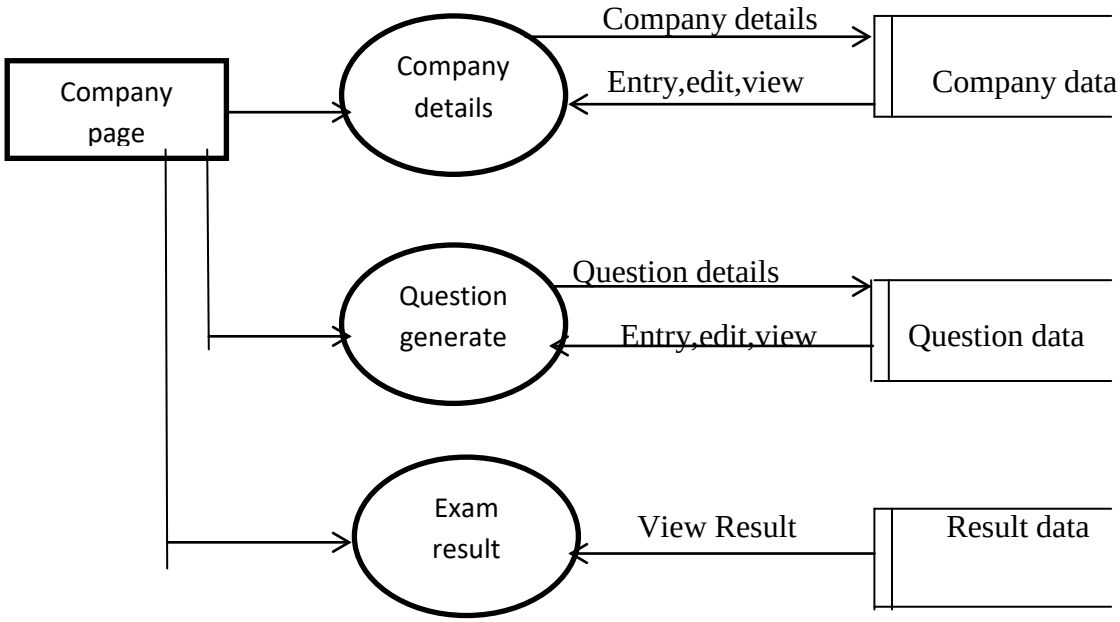
Company will select the candidate based on their test mark and their education qualification through online. Finally company will send interview call letter to the selected candidates.

5. DATA FLOW DIAGRAM

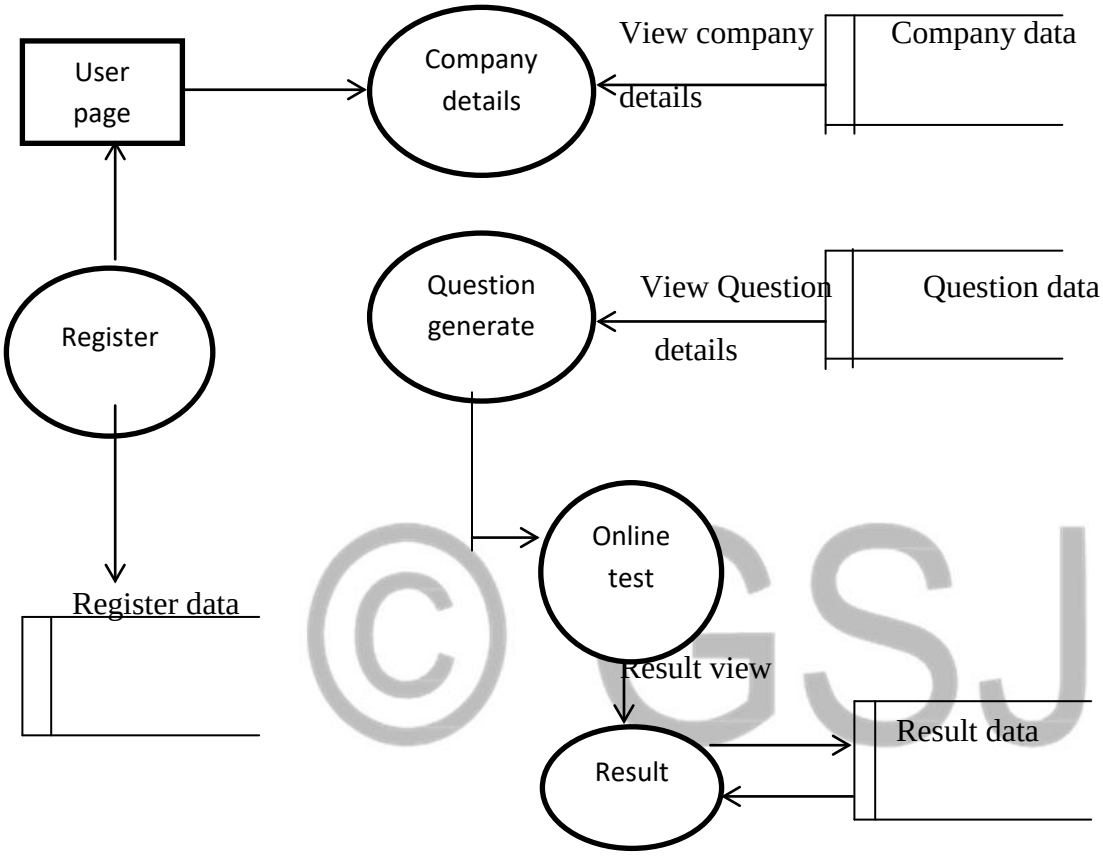
Level 0



Level 1



Level 2



6. PLATFORM

6.1 hardware description

The selection of hardware is very important in the existence and proper working of any software. When selecting hardware, the size and requirements are also important.

- ***Minimum Requirements:***

Processor	:	Pentium II class, 450MHz
RAM	:	1GB
Hard Disk Drive	:	150GB
Video	:	800X600, 256 colors
CD-ROM	:	Required

The proposed System is developed on

Processor	:	INTEL Pentium 4
RAM	:	512MB
Hard Disk Drive	:	40GB
Key Board	:	Logitech
Monitor	:	LED
Display Adapter	:	Trident Super VGA
Network Adapter	:	SMC Ethernet Card Elite 16 Ultra
Mouse	:	Logitech Serial Mouse

7.2 software description

- ***Minimum Requirements:***

Operating System	:	Windows7 Ultimate
Front- End	:	Asp.Net
Back- End	:	MS SQL SERVER 2008 EXPRESS

7.2.1 asp.net

ASP.NET is a set of Microsoft.NET framework technologies used for building web applications and XML Web services. ASP.NET page execute on the server and generate mark up such as HTML, WML or XML that is sent to a desktop or mobile browser. ASP.NET pages use a compiled, event-driven programming model that improves performance and enables the separation of application logic and user interface. Both ASP.NET pages and ASP.NET web services files contain server-side (as opposed to client side logic) written in Visual basic .NET, C#.NET or any .NET compatible language, Web applications and XML Web Services take advantage of the features of the common language runtime, such as type safety, inheritance, language, interoperability, versioning, and integrated security. The .NET Framework programming model that enables developers to build Web-based applications which expose their functionality programmatically over a network using standard protocols such as SOAP and HTTP.

- Developer tools such as Microsoft Visual Studio .NET, which provide a rapid application integrated development environment for programming with the .NET Framework.
- A set of servers including Microsoft Windows 2000, Microsoft SQL, Server and Microsoft BizTalk Server that integrates, runs, operates and manages XML Web services and applications.
- Client software such as Windows XP, Windows CE and Microsoft Office XP that helps developers deliver a deep and compelling user experience across a family of devices and existing products.

The .NET Framework is the programming model of the .NET environment for building, deploying and running Web- based applications, smart client applications and XML Web services. It manages much of the plumbing, enabling developers to focus on writing the business

logic code for their applications. The .NET Framework includes the common language runtime and class libraries.

8. SYSTEM IMPLEMENTATION

❖ Implementation

Implementation is the carrying out, execution, or practice of a plan, a method, or any design for doing something. As such, implementation is the action that must follow any preliminary thinking in order for something to actually happen.

In an information technology context, implementation encompasses all the processes involved in getting new software or hardware operating properly in its environment.

Including installation, configuration, running, testing, and making necessary changes. The word deployment is sometimes used to mean the same thing.

❖ System maintenance

System maintenance is an ongoing activity, which covers a wide variety of activities, including removing program and design errors, updating documentation and test data and updating user support.

❖ Corrective maintenance

Corrective maintenance is a maintenance task or operation done in order to identify, isolate or separate and rectify a particular fault. This is performed in order to restore the failed machine, equipment or system to an operational condition. Corrective maintenance can be either planned or unplanned.

❖ Adaptive maintenance

Adaptive maintenance includes changes to the functionality of the system developed for specific customer needs. Adaptive maintenance also implies the need for modifications of certain functionalities, although the system works as expected and in this sense that there is no fault or error in the system. It usually occurs when there comes to a change in legal norms or a shift in the political business users.

❖ Perfective Maintenance

Perfective maintenance involves making enhancements to improve processing performance, interface usability, or to add desired, but not necessarily required, system features. The objective of perfective maintenance is to improve response time, system efficiency, reliability, or maintainability. During system operation, changes in user activity or data pattern can cause a decline in efficiency, and perfective maintenance might be needed to restore performance. Usually, the perfective maintenance work is initiated by the IT department, while the corrective and adaptive maintenance work is normally requested by users.

❖ Preventive Maintenance

Preventive maintenance involves changes made to a system to reduce the chance of future system failure. Preventive maintenance is less likely to occur as compared to corrective maintenance.Finally note that over the life of a system, corrective maintenance is most likely to occur after system installation or after major system changes. This means that adaptive, perfective, and preventive maintenance activities can lead to corrective maintenance activities if not carefully designed and implemented.

8.1 Coding:

```
namespace OnlineTestPortal.admin
{
   public partial class qpEntry : System.Web.UI.Page
   {
      protected void Page_Load(object sender, EventArgs e)
      {

      }
      string table = null;
      protected void Button1_Click(object sender, EventArgs e)
      {
         //if (RadioButton1.Checked == false || RadioButton2.Checked == false ||
RadioButton3.Checked == false || RadioButton4.Checked == false || DropDownList1.Text ==
"Select" || TextBox1.Text == "" || TextBox2.Text == "" || TextBox3.Text == "" || TextBox4.Text
== "" || TextBox5.Text == "")
         //{
         //    Label1.Text = "please enter all the fields ";
         //    return;
         //}
         //else
         //{
         //    Label1.Text = "";
         //}
         if (TextBox6.Text == "Genral knowledge")
         {
            table = "gk";
         }
         else if (TextBox6.Text == "IT")
         {
            table = "qb";
         }

         SqlConnection con = new SqlConnection(@"Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\examdb.mdf;Integrated
Security=True;User Instance=True");

         SqlDataAdapter da = new SqlDataAdapter();

         //DataTable dt = new DataTable();
```

```
        string ans=null ;

        if (RadioButton1.Checked == true)
        {
           ans = TextBox2.Text;
        }
        else if (RadioButton2.Checked == true)
        {
           ans = TextBox3.Text;
        }
        else if (RadioButton3.Checked == true)
        {
           ans = TextBox4.Text;
        }
        else if (RadioButton4.Checked == true)
        {
           ans = TextBox5.Text;
        }
        con.Open();


        da.InsertCommand = new SqlCommand("insert into qb values('" + TextBox1.Text + "','"
+ TextBox2.Text + "','" + TextBox3.Text + "','" + TextBox4.Text + "','" + TextBox5.Text + "','"
+ ans + "','" + TextBox6.Text + "')", con);

        da.InsertCommand.ExecuteNonQuery();

        con.Close();
        //Response.Redirect("<script> alert('saved successfully!')</script>");
        RadioButton1.Checked = false;
        RadioButton2.Checked = false;
        RadioButton3.Checked = false ;
           RadioButton4.Checked = false ;
           //TextBox6.Text = "Select";
           TextBox1.Text = "" ;
           TextBox2.Text = "" ;
           TextBox3.Text = "" ;
           TextBox4.Text = "" ;
           TextBox5.Text = "";
           //TextBox6.Text = "";

     }


   }
}
```

```
namespace OnlineTestPortal
{
   public partial class _Default : System.Web.UI.Page
   {
      protected void Page_Load(object sender, EventArgs e)
      {

      }

      protected void Button1_Click(object sender, EventArgs e)
      {
                  // SqlConnection con = new SqlConnection (@"Data source =
FEMTOSOFT\SQLEXPRESS; Initial catalog = exam; integrated security = true");

         SqlConnection con = new SqlConnection(@"Data
Source=.\SQLEXPRESS;AttachDbFilename=|DataDirectory|\examdb.mdf;Integrated
Security=True;User Instance=True");

                  SqlDataAdapter da = new SqlDataAdapter ();

                  DataTable dt = new DataTable ();

                  con .Open ();
                  da.SelectCommand = new SqlCommand("select * from reg where
uname='"+TextBox1 .Text +"' and pass = '"+TextBox2 .Text +"'", con);

                  da.Fill(dt);

                  //da.InsertCommand = new SqlCommand ("insert into reg values ('"+TextBox1
.Text +"','"+TextBox2 .Text +"','"+TextBox3 .Text +"','"+TextBox4 .Text +"')",con );

                  da.SelectCommand  .ExecuteNonQuery ();

                  if (dt.Rows.Count > 0)
                  {
                     Response.Redirect("~//Exam//home.aspx");
                  }
                  else if (TextBox1 .Text =="admin" && TextBox2 .Text =="admin-123")
                  {
                     Response.Redirect("~//admin//home.aspx");
                  }
                  else
                  {

                     Label1.Text = "User Name or password is incorrect!";

                     TextBox2.Text = "";
                     TextBox2.Focus();
                  }
```