# ODDHOYON.COM

# AN INTERACTIVE BENGALI WEB-APPLICATION FOR STUDENTS

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Project Submitted in partial fulfullment of the requirement for the
Degree of Bachelor of Science(Computer Science and Engineering)

Supervisor's Signature

.………………………
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# 1. INTRODUCTION

We, Mohammad. Nahin Islam and S.M. Maruf, are both final Year Students, and we are both passionate about teaching and learning. In our educations yet we have been individually benefited from the inspiration of our teachers .

Yet the world is in transition in both the study and implementation of learning experiences, and this has resulted in questions such as, "Will online replace teachers?" We emphatically believe that the answer is "No." The role of teachers is essential and irreplaceable — rather, we believe that the value of in-person education can be enhanced by blending in online experiences." 2 The debate becomes particularly controversial in the context of the costs of education. Here too we believe that nuances are being missed and judgments are being rushed. What is urgently needed is a careful analysis of what we know about education and learning, and an analysis of the benefits of in-person and online models in different scenarios. This is the objective of our Project report.

Oddhoyon.com , like any other Online education benefits, will spark student's interest and will encourage them to pursue online education further. Most of the formal education is structured with one pace and everyone must follow. One thing is that it does not work for most students and to be able to this structure one's own pace is one of the greatest perks of being educated online.  It will not only help students grasp study material easier like Physics Tutorial Videos, CBSE 11 Physics Videos, JEE Physics Videos, etc. But also help students obtain the best result. So, if anyone wants to choose his/her own pace, then Oddhoyon.com will be there to help and develop skills.

## 2. BACKGROUND OF THE STUDY

### 2.1. Education System

Education is a complex multi-layered system. In formal education, the processes that occur in the classroom and informal study are central to learning, but important factors both larger and smaller in scale than the classroom affect outcomes.

### 2.2. Govt. Attempts

Government with the help of Science and engineering fields often attempt to model systems by delineating the factors that introduce variables into the system, for example, before Year 2000 the highest level school certification was regarded as 'Matric' with the measurement like, 1$^{st}$ division or 2$^{nd}$ division with the respective marks, but now the system is considered as Secondary School Certification which has introduced GPA system. Furthermore, in previous years ago there were scholarship program in class 5 & 8 provided by the govt. which is now become Primary School Certificate (PSC) & Junior School Certificate (JSC) and for these no scholarship is provided. Another great change has been occurred in the system, Govt. has introduced a scientific method of learning in school and college level naming it "SrijonShil", for better education and developing the hidden skills of the students.

But the total system is still bounded in the text format, those old paper and black fonts, even more subjects are included to the syllabus. Student are told to be provided with better lab assistants and libraries. But unfortunately unlike well-known institutes, other schools of the country cannot afford to provide these types of facilities, specialy our "Rural Education System" is not that much rich with the economy. Many of the students there are doing their best just sitting on the floor and reading books over the tables. Besides them, who have better place for study with concrete roofs, they are not being benefited with the program, for that when they come to the urban life to study, lagging behind with the students here in the race of career. In addition, the urban student get the proper guidance and suggestions in their studies where rural students lack that. Student are well connected with each other from different schools or colleges, sharing their notes or the questions of their institutes class tests or final exams.

**From this instance**, we are motivated to choose a web-application project that can be beneficial for all stages of students specially the rural students of Bangladesh.

### 2.3. For Whom & How ?

Question can be arrived **"How these students can be benefited through online education as they are mentioned to be rural, not that much educated in compare of the urban ones ? "**, reply to this, if we concentrate on the current situation of the tele-communication technology, many of the local as well foreign companies are trading their cellular phone products in cheap rate, and for that most of the rural people are getting involved with the use of modern mobile phones as well as internet services. And this is the path way to reach our service to the students who are familiar with mobile operated in Android/Symbian/Java even iOS platform.

**Mind Wandering Fact,** mind wanders naturally, and the focus of the brain falters in time as "task-unrelated thoughts" gain hold. New and interesting facts remain in brain for long period of time. Students are gaining knowledge from the books but cannot realize the facts, for example, students are learning about the formation of the atoms of the elements in chemistry but cannot visualize, another one, there is a topic of "Reflection of Light" in physics book of class 9&10 standard that, "light often

act as particle again as wave" and that's it nothing in brief. So how can they get to know about this things clearly ? Now, our aim is to provide them with some resources with 'Visual' effects to help in their study.
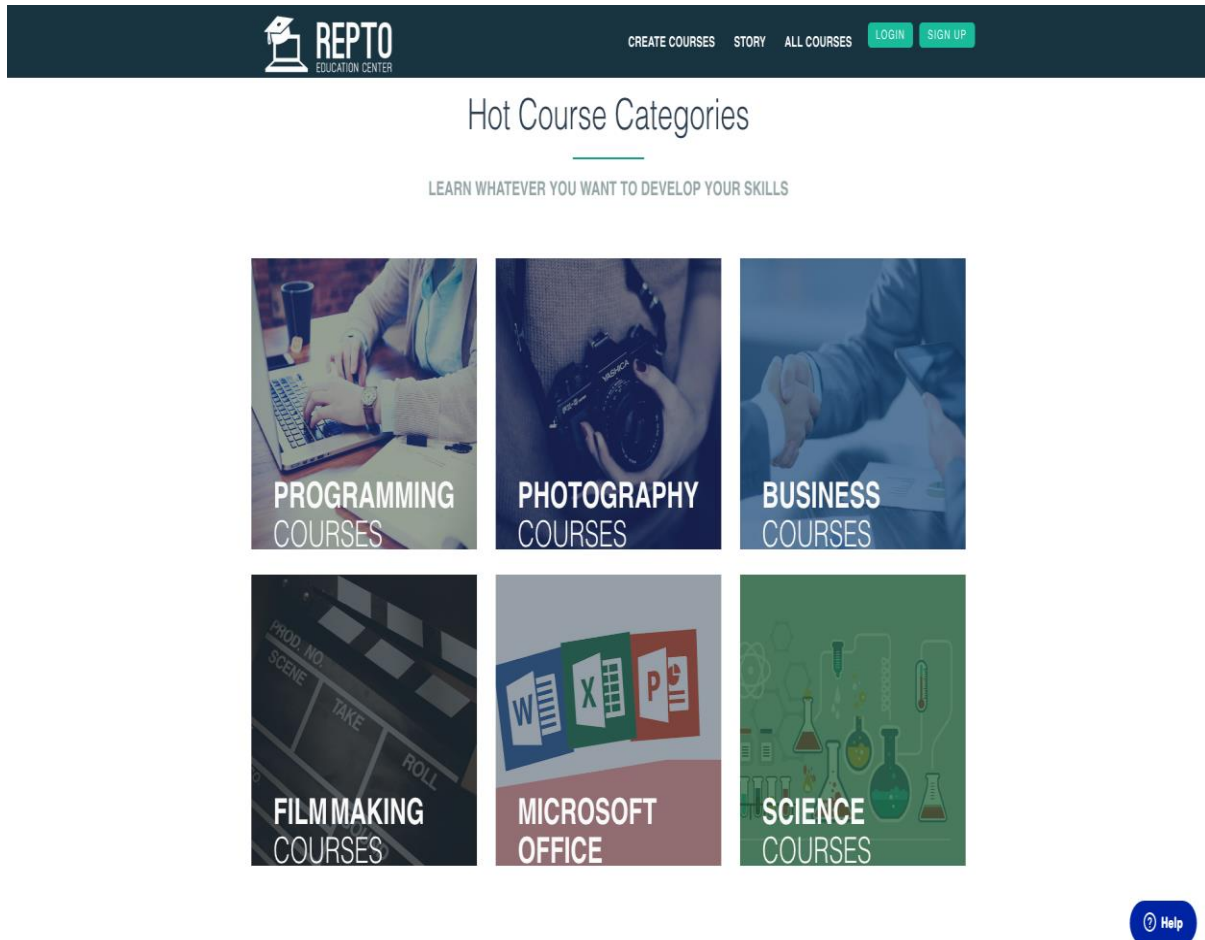
## 3. REVIEW OF LITERATURE

Oddhoyon.com is an interactive Bengali browser based Web-Application for students. We have been developing the projects for last few months, yet the UI & DB is mostly completed and some features are under Process.

Many of the web-developers have come forth to provide guidance and help students to develop their skills, one of them



 **Shikkhok** a well-known website for students and as well as leaners of every sects. But yet there is no website or web-application or even tools to help the students of our country in their study of schools or

colleges under the system of Govt. there are also some websites which are providing good services like, MCTB books in pdf form, publishing public results, providing online suggestion of the public exams, online courses etc. **[1]** Naming their domain,



 **REPTO** - Education Center is an Open Online Course marketplace to let you be free in the world of education. You are the king of your world and you have the right to learn what you love and when you want to learn, without any barrier of the time, place and money. And REPTO - Education Center is the best option for you to be free, creative and self dependent through the power of online education.**[2]**

Search

# Teaching BD

Shah Jamal's Online Classroom

Admission ▾   HSC,SSC,JSC,PSC Corner   Note ▾   Result ▾   NCTB, Madrasa and Islami Book   Suggestion ▾   Important Links ▾   Hot Result ▾

Job Circular   Routine ▾   ♋ Medical Tips

## Conservative & Non-Conservative Forces & Gravitation

👤 Shah Jamal   🕑 May 13, 2016   📁 Pure Physics   💬 0

Conservative & Non-conservative forces and Gravitation Conservative Forces: A conservative force is one which draws or supplies no energy from or to a body in a complete round trip. A conservative force does zero total work on any closed path. That means, when a body is thrown upward, its kinetic ...

Read More »

## Elastic and inelastic Collision Problems & Explanation

👤 Shah Jamal   🕑 May 13, 2016   📁 Pure Physics   💬 0

Elastic and inelastic Collision A collision is an isolated event in which two or more bodies (the colliding bodies) exert relatively strong forces on each other for a relatively short period of time.   In other words, a brief event in which two or more bodies come together; "the collision ...

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## Full SSC Exam Result 2016 Mark Sheet Grade

👤 Shah Jamal   🕑 May 10, 2016   📁 Dakhil, Result, SSC   💬 22
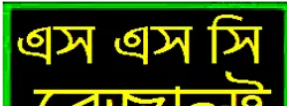
SSC Result 2016 Bangladesh Education board. SSC result 2016 will be published after 3 months from finishing the SSC examination. SSC exam Result 2016 will publish 30 May 2016. Many students are now anxious about their result after giving the SSC exam 2016. SSC means Secondary school

### ABOUT ME

**Md. Shah Jamal,** Asst. Professor of Physics, BAF Shaheen College Dhaka.

I ❤ BossHostBD

### TOP POSTS

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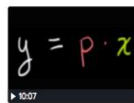
Full SSC Exam Result 2016 Mark Sheet Grade

Suggestion and Question Patterns of HSC Examination 2016

**Teachingbd.com** is Shah Jamal's Online Classroom is a Website made by Asst. Professor of Physics, BAF Shaheen College Dhaka. [3]

**Khan Academy** is a non-profit educational organization created in 2006 by educator **Salman "Sal" Khan** with the aim of providing a "free, world-class education for anyone, anywhere".[5] The organization produces short lectures in the form of Youtube videos.[6] In addition to micro lectures, the organization's website features practice exercises and tools for educators. All resources are available for free to anyone around the world. The main language of the website is English, but the content is also available in other languages. **[4]**
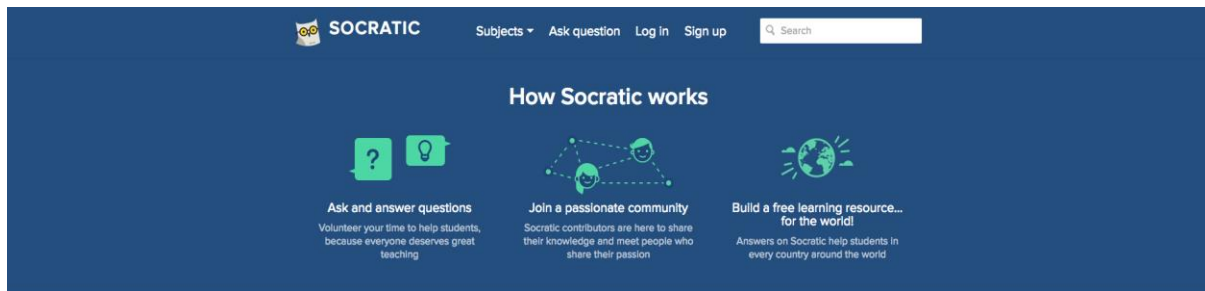
There is a website called **Socratic** who are deliberately providing their services to the students with their fields of interests which has also motivated us to step forward with our projects. I do have an account there and have been attached them for last few months and have got followers. **[5]**
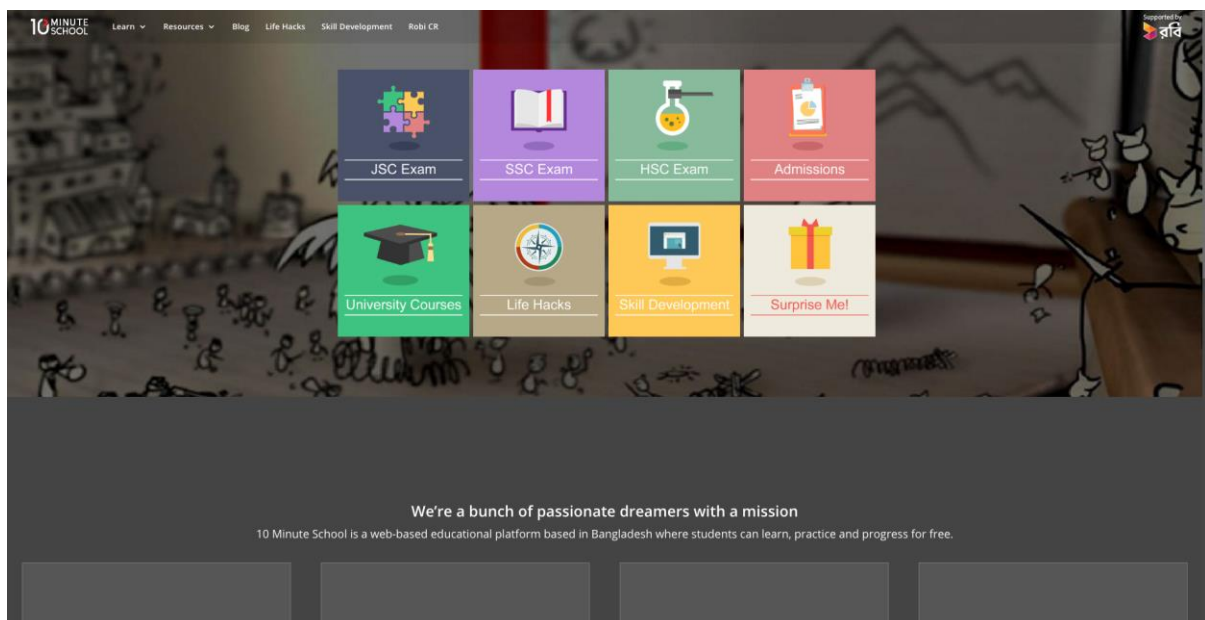


**10 Minute School** is a web-based educational platform based in Bangladesh where students can learn, practice and progress for free. Launched on 2 September 2014. **[6]**

## 4. METHODS AND PROCEDURE

As we have discussed earlier above, this report is based on web-application. This system is an independent application. It does not interface with any application. Thus the development will be done in .NET platform with the help of MVC and the Latest framework **'Entity framework'** of **ASP.NET** .

### 4.1 Why choosing ASP.NET?

"Anyone old enough to remember classic ASP will remember the nightmare of opening a page with code mixed in with html and javascript - even the smallest page was a pain to figure out what the heck it was doing. I could be wrong, and I hope I am, but MVC looks like going back to those bad old days. When ASP.Net came along it was hailed as the savior, separating code from content and allowing us to have web designers create the html and coders work on the code behind. If we didn't want to use ViewState, we turned it off. If we didn't want to use code behind for some reason, we could place our code inside the html just like classic ASP. If we didn't want to use PostBack we redirected to another page for processing. If we didn't want to use ASP.Net controls we used standard html controls. We could even interrogate the Response object if we didn't want to use ASP.Net runat="server" on our controls", Says **Kevin Farrow** at **stackoverflow.com** a well-known teacher and developer of **ASP.NET** .

### 4.2 MVC

MVC stands for Model View Controller, is a software design pattern for developing web applications. A Model View Controller pattern is made up of the following three parts:

**Model** - The lowest level of the pattern which is responsible for maintaining data.

**View** - This is responsible for displaying all or a portion of the data to the user.

**Controller** - Software Code that controls the interactions between the Model and View.

| HTML | CSS | Browser |
|---|---|---|

**css Zen Garden**

**The Beauty of CSS Design**

A demonstration of what can be accomplished
this page.

Download the sample html file and css file

**The Road to Enlightenment**

Littering a dark and dreary road lay the past r

Today, we must clear the mind of past practic
W3C, WaSP and the major browser creators

The css Zen Garden invites you to relax and r

```
body {
    font: 12px/16px arial, helveti
    color: #555;
    background: url(bg_left.gif) r
    margin: 0;
    padding: 0;
}

a {
    text-decoration: none;
    font-weight: bold;
    color: #655;
}
a:hover {
    text-decoration: none;
    font-weight: bold;
    color: #e60;
}
```

css Zen Garden: The Beauty in CSS Design - Mi
File   Edit   View   Favorites   Tools   Help
Back ▾       ▾  ✕  🔄  🏠  Searc
Address  http://www.csszengarden.com/?cssfile=02

The Beauty of **CSS zen garde** Design

**Fig. 1 : Model, View & Controller concept**

This is popular as it isolates the application logic from the user interface layer and supports separation of concerns. Here the Controller receives all requests for the application and then works with the Model to prepare any data needed by the View. The View then uses the data prepared by the Controller to generate a final presentable response. The MVC abstraction can be graphically represented as follows.
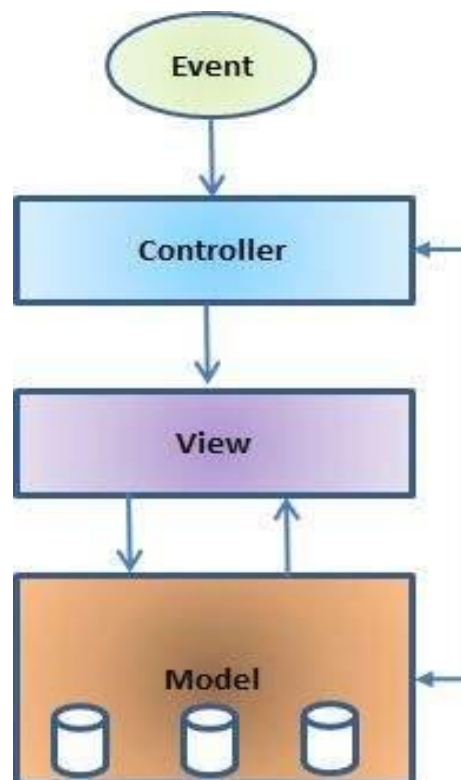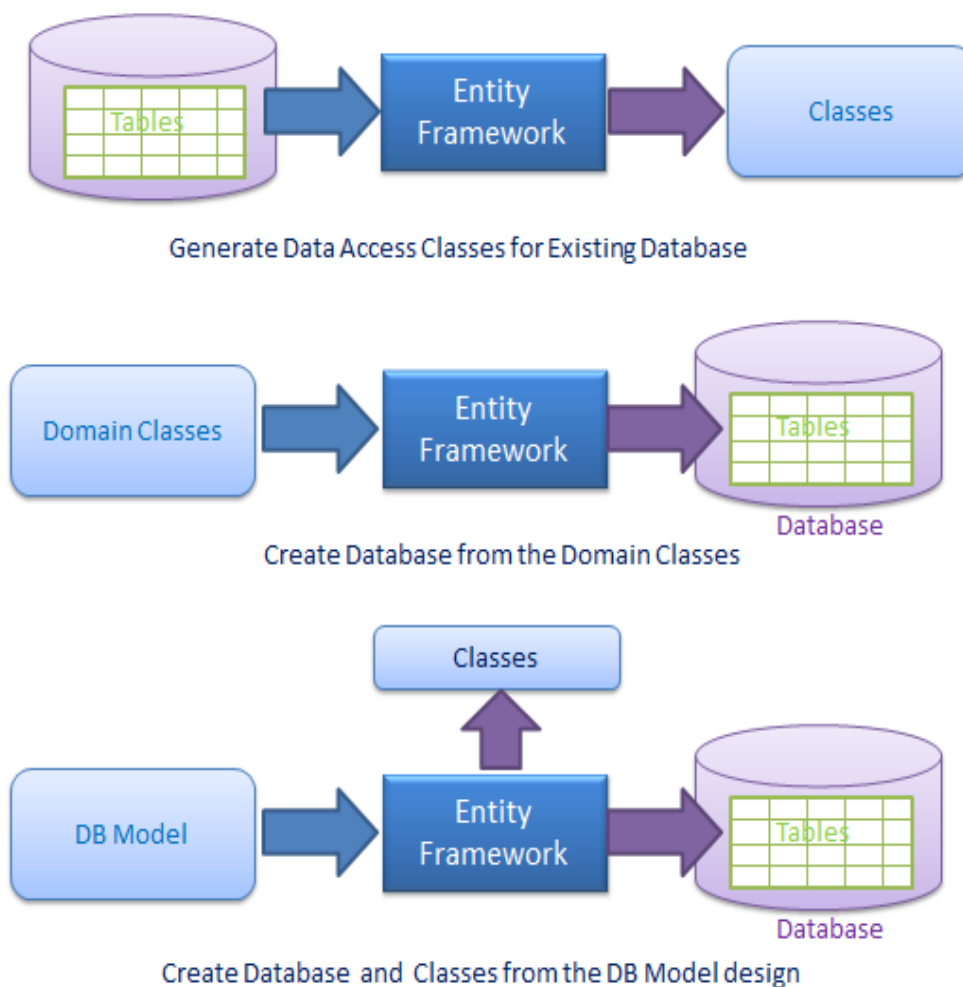
**Fig. 2 : MVC workflow.**

## 4.3 Entity Framework

**EF** is an Object/Relational Mapping (O/RM) framework. It is an enhancement to ADO.NET that gives developers an automated mechanism for accessing & storing the data in the database.

Entity framework is useful in three scenarios. First, if you already have existing database or you want to design your database ahead of other parts of the application. Second, you want to focus on your domain classes and then create the database from your domain classes. Third, you want to design your database schema on the visual designer and then create the database and classes. The following figure illustrates the above scenarios.



Generate Data Access Classes for Existing Database

Create Database from the Domain Classes

Create Database and Classes from the DB Model design

**Fig. 3 : Entity Framework Workflow**

## 4.4 Software Development Tools

No external hardware interfacing is required rather as of Software Interfaces that will be used for the development are,

- **Operating System** : Windows 7/8/8.1/10,
- **Software Interface** : Visual Studio 2015, Microsoft SQL Server, Bracket
- **Language** : C#, ASP.NET, HTML5 & CSS3
- **Frameworks** : Entity Framework, Bootstrap
- **Database** : MS SQL Server 2012
- **Server** : SMTP

## 4.5 Generic software process model

This Project is being developed under mix variation of two models-

- Component based Model
- Evolutionary development Model.

### 4.5.1 Component based Model

The model based on systematic reuse where systems are integrated from existing components. This is like, people working on the project →Know of design or code → Modify them as needed → incorporate them into their system.

Process Stages

- Component analysis
- Requirements modification
- System design with reuse
- Development and integration

This approach is becoming increasingly used as component standards have emerge
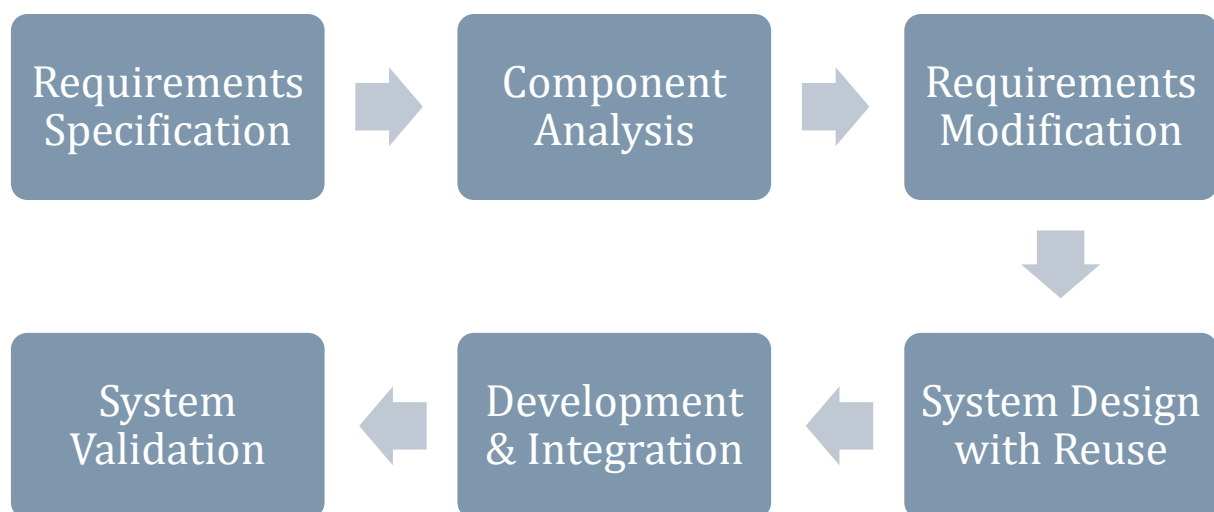
```
Requirements       Component        Requirements
Specification  →    Analysis     →   Modification
                                          ↓
System       ←  Development   ←   System Design
Validation       & Integration      with Reuse
```

**Fig. 4 : Component-based Model**

### 4.5.2 Evolutionary based Model

This model interleaves the activities of specification, development and validation. Initial system is developed from abstract specification. Then refined with users input to produce a system that satisfies the user's needs.
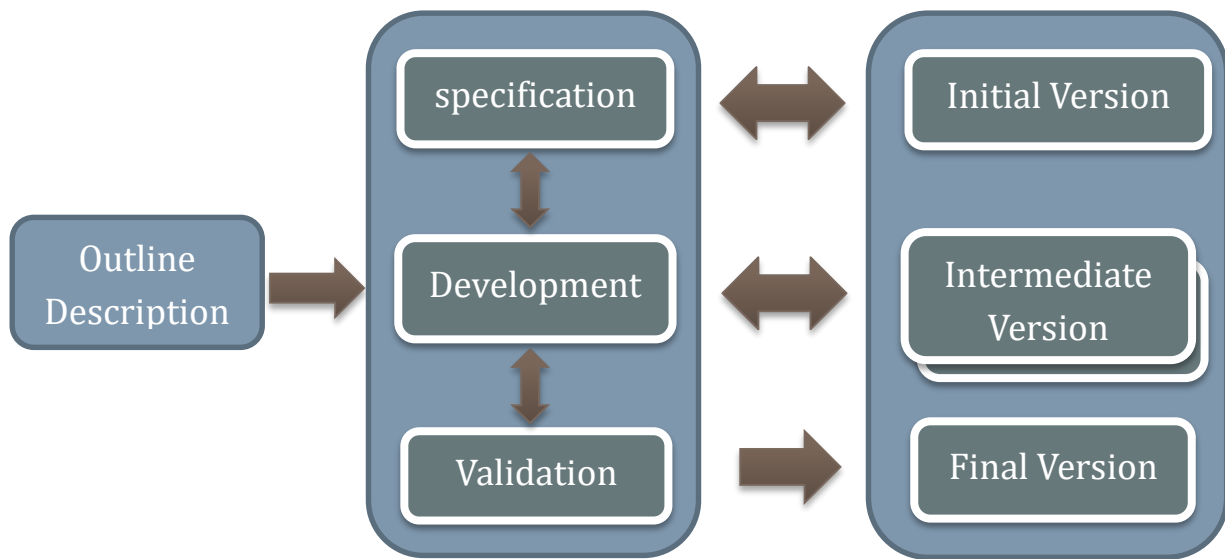


**Fig.5 : Evolutionary Based Model**

#### 4.5.2.1. Applicability

- For small or medium-size interactive systems
- For parts of large system (e.g. the user interface)

#### 4.5.2.2. Problems

- Lack of process visibility.
- System are often poorly structured.
- Special skills may be required.

### 4.6. E-R Diagram



**Fig. 6 : ER Diagram of Oddhoyon**

## 5. Project Scope

It is an online system for Bangladesh which is made for the purpose of educating all levels of students especially of rural areas. The In scope features of the system are:

- Registration
- Log in
- Studying the syllabus of NCTB books
- Course evaluation
- Suggestions for public exams
- Ask & Answer
- Public Results

## 5.1. Assumptions and Dependencies

It is a web based application and will be supported by the following web browser.

- Internet Explorer
- Microsoft Edge
- Firefox.
- Google Chrome
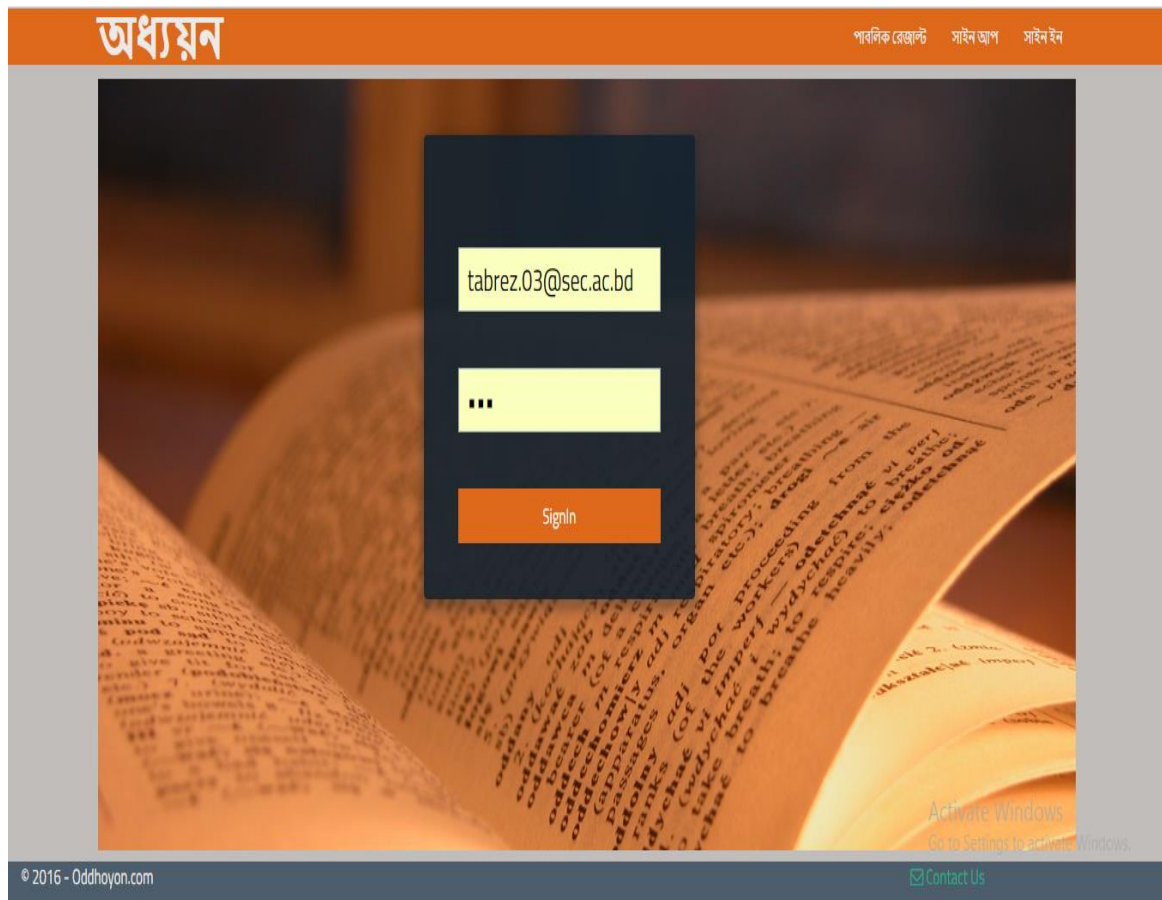
The speed of the system is dependent upon the network speed but a minimum of 312kbps speed is required for operation.

## 6. User Interface Design

### 6.1 Welcome Page

## 6.2 Sign In Form



## 6.3 Sign Up Form

## 6.4 Public Result Form (Govt. Official Form)

## 6.5 Student UI

### 6.5.1 Home Page after Sign In

### 6.5.2 Q&A Form

### 6.5.3 Free Course

### 6.5.4   Question Suggestion



### 6.5.5   Text Books

## 6.6 Admin UI

### 6.6.1  Create Course Form



### 6.6.2  Create Suggestion Form

### 6.6.3   Model Test Upload Form



### 6.6.4   Chapter Create Form

### 6.6.5 Upload Chapter Contents



### 6.6.6 Text Book Create Form

# 7. Core Codes

## 7.1 Sign Up Controller

RegistrationController.cs

Oddhoyon_Final_Project — Oddhoyon_Final_Project.Areas.Security.Controllers.Registr — Index()

```csharp
namespace Oddhoyon_Final_Project.Areas.Security.Controllers
{
    [AllowAnonymous]
    0 references
    public class RegistrationController : BaseSecurityController
    {
        // GET: Security/Registration
        0 references
        public ActionResult Index()...

        [HttpPost]
        0 references
        public ActionResult Create(tbl_Users user)
        {
            try
            {
                if (ModelState.IsValid)
                {
                    user.Role = "U";
                    objBs.userBs.Insert(user);
                    TempData["Msg"] = "Created Successfully";
                    return RedirectToAction("Index");
                }
                else
                {
                    return View("Index");
                }
            }
            catch (Exception e1)
            {
                TempData["Msg"] = "Registration Failed " + e1.Message;
                return RedirectToAction("Index");
            }
        }
    }
```

## 7.2 Sign In Controller

LoginController.cs

Oddhoyon_Final_Project — Oddhoyon_Final_Project.Areas.Security.Controllers.LoginC — SignIn(tbl_Users user)

```csharp
namespace Oddhoyon_Final_Project.Areas.Security.Controllers
{
    [AllowAnonymous]
    0 references
    public class LoginController : Controller
    {
        // GET: Security/Login
        0 references
        public ActionResult Index()...

        [HttpPost]
        0 references
        public ActionResult SignIn(tbl_Users user)
        {
            try
            {
                if (Membership.ValidateUser(user.UserEmail, user.Password))
                {
                    FormsAuthentication.SetAuthCookie(user.UserEmail, false);
                    return RedirectToAction("Index", "Home", new { area = "Common" });
                }
                else
                {
                    TempData["Msg"] = "Login Failed";
                    return RedirectToAction("Index");
                }
            }
            catch (Exception e1)
            {
                TempData["Msg"] = "Login Failed " + e1.Message;
                return RedirectToAction("Index");
            }
        }
        0 references
        public ActionResult SignOut()...
```

## 7.3 Text Books Controller

```
BooksController.cs*  ⊐ ×
Oddhoyon_Final_Project                    ▾  ᵗ⅃ Oddhoyon_Final_Project.Areas.User.Controllers.BooksCont ▾  ⊘ ClassNine(int? id)
                        0 references
        16    │    public class BooksController : Controller
        17    │    {
        18    │        private CCBs objBs = new CCBs();
        19    │        private Oddhoyon_AdminPanelEntities db = new Oddhoyon_AdminPanelEntities();
        20    │
        21    │        // GET: User/Books
                        0 references
        22    │        public ActionResult Index()
        23    │        {
        24    │            var tbl_TextBook = db.tbl_TextBook.Include(t => t.tbl_Class);
        25    │            return View(tbl_TextBook.ToList());
        26    │        }
        27    │
                        0 references
        28    │        public ActionResult ClassNine(int? id)
        29    │        {
        30    │            List<object> myModel = new List<object>();
        31    │            var cont = objBs.GetALL().ToList().Where(x => x.ChapterDetailsID == 6);
        32    │            //var TextBook = db.tbl_TextBook.Include(t => t.tbl_Class).ToList().Where(x => x.ClassID == 9);
        33    │
        34    │            myModel.Add(db.tbl_TextBook.ToList());
        35    │            myModel.Add(db.tbl_Chapter.ToList());
        36    │            if (id > 0) { ViewBag.chapId = id; }
        37    │            else { ViewBag.chapId = 0; }
        38    │            myModel.Add(db.tbl_ChapterContent.ToList());
        39    │
        40    │            //ViewBag.TotalPages = Math.Ceiling(objBs.GetALL().Count() / 1.0);
        41    │            //int page = int.Parse(Page == null ? "1" : Page);
        42    │            //ViewBag.Page = page;
        43    │            //cont = cont.Skip((page - 1) * 1).Take(1);
        44    │            //myModel.Add(cont);
        45    │
        46    │            return View(myModel);
        47    │        }
```

## 7.4 Course Controller

```
BooksController.cs*
Oddhoyon_Final_Project                    ▾  ᵗ⅃ Oddhoyon_Final_Project.Areas.User.Controllers.PostsContr ▾  ⊘ English()
        11    │ ⊟namespace Oddhoyon_Final_Project.Areas.User.Controllers
        12    │ {
        13    │
                        0 references
        14    │    public class PostsController : Controller
        15    │    {
        16    │        private Oddhoyon_AdminPanelEntities db = new Oddhoyon_AdminPanelEntities();
        17    │
        18    │        // GET: User/Posts
        19    │        [AllowAnonymous]
                        0 references
        20    │        public ActionResult Index()...
        27    │        [AllowAnonymous]
                        0 references
        28    │        public ActionResult Physics()...
        33    │        [Authorize(Roles = "U")]
                        0 references
        34    │        public ActionResult ICT()...
        39    │        [Authorize(Roles = "U")]
                        0 references
        40    │        public ActionResult Chemistry()...
        45    │        [Authorize(Roles = "U")]
                        0 references
        46    │        public ActionResult Biology()...
        51    │        [Authorize(Roles = "U")]
                        0 references
        52    │        public ActionResult Math()...
        57    │        [Authorize(Roles = "U")]
                        0 references
        58    │        public ActionResult History()...
        63    │        [Authorize(Roles = "U")]
                        0 references
        64    │        public ActionResult English()...
        69    │        [Authorize(Roles = "U")]
                        0 references
        70    │        public ActionResult Invention()
        71    │        {
```

## 7.5 Create Chapter Contents with Picture Uploads

```
[HttpPost]
[ValidateAntiForgeryToken]
0 references
public ActionResult Create([Bind(Include = "ChapterContentID,ChapterDetailsID,TopicTitle,TopicDetails,Qst,Ans,Image,Video")] tbl_
{
    if (ModelState.IsValid)
    {
        if (picture.File.ContentLength > 0)
        {
            var fileName = Path.GetFileName(picture.File.FileName);
            var path = Path.Combine(Server.MapPath("~/Images"), fileName);
            picture.File.SaveAs(path);

            var pathInDB = "~/Images/" + fileName;
            tbl_ChapterContent.Image = pathInDB;

        }

        db.tbl_ChapterContent.Add(tbl_ChapterContent);
        db.SaveChanges();
        return RedirectToAction("Index");
    }

    ViewBag.ChapterDetailsID = new SelectList(db.tbl_ChapterDetails, "ChapterDetailsID", "ChapterDetailsID", tbl_ChapterContent.(
    return View(tbl_ChapterContent);
}
```

## 7.6 Sending Email to User

```
[HttpPost]
0 references
public ActionResult Form(string recieverEmail,string subject,string message)
{
    try
    {
        if (ModelState.IsValid)
        {
            var senderEmail = new MailAddress("demotbz1@gmail.com");
            var recieveremail = new MailAddress(recieverEmail, "Receiver");

            var password = "demotbz1234";
            var sub = subject;
            var body = message;

            var smtp = new SmtpClient
            {
                Host = "smtp.gmail.com",
                Port = 587,
                EnableSsl = true,
                DeliveryMethod = SmtpDeliveryMethod.Network,
                UseDefaultCredentials = false,
                Credentials = new NetworkCredential(senderEmail.Address, password)
            };

            using (var msg = new MailMessage(senderEmail, recieveremail)
            {
                Subject = subject,
                Body = body
            }
            )
            {
                smtp.Send(msg);
            }
```

## 8. ADVANGTAGES

The services that will be in the focus are-

- ➡ UI will be more interactive in Bengali.

- ➡ Chapter basis knowledge with proper and valid information related to the textbooks provided by the govt. on class basis through Visual-Effects.

- ➡ For better practice question-suggestions of different public exams can be found..

- ➡ Ask & Answer on category Basis.

- ➡ User will be able to get the public results.

## 9.  LIMITATIONS

### 9.1 Drawbacks of the System

There are some drawbacks till now that cannot be done yet for lack of information gathering and logical  dependency,

- ➡ The system cannot differentiate activity-log of users yet
- ➡ MCQ Exam is not applied yet
- ➡ For demonstrating the project some data are inserted into the database.

## 10. FURTHER SCOPE

The features which are currently out of scope and may be added later on as an extension to the application are:

- ➡ Chapter basis MCQ Solving tests
- ➡ Downloading course content
- ➡ Video conferencing
- ➡ Comprehensive information library

## 11. TESTING:

### 11.1 System Testing

System testing of software or hardware is testing conducted on a complete, integrated system to evaluate the system's compliance with its specified requirements. System testing falls within the scope of black-box testing, and as such, should require no knowledge of the inner design of the code or logic. [1]

As a rule, system testing takes, as its input, all of the "integrated" software components that have passed integration testing and also the software system itself integrated with any applicable hardware system(s). The purpose of integration testing is to detect any inconsistencies between the software units that are integrated together (called *assemblages*) or between any of the *assemblages* and the hardware. System testing is a more limited type of testing; it seeks to detect defects both within the "inter-assemblages" and also within the system as a whole

### 11.2 Unit Testing:

Unit testing is a software development process in which the smallest testable parts of an application, called units, are individually and independently scrutinized for proper operation. Unit testing is often automated but it can also be done manually. This testing mode is a component of Extreme Programming (XP), a pragmatic method of software development that takes a meticulous approach to building a product by means of continual testing and revision. Unit testing involves only those characteristics that are vital to the performance of the unit under test. This encourages developers to modify the source code without immediate concerns about how such changes might affect the functioning of other units or the program as a whole. Once all of the units in a program have been found to be working in the most efficient and error-free manner possible, larger components of the program can be evaluated by means of integration testing. Unit testing can be time-consuming and tedious. It demands patience and thoroughness on the part of the development team. Rigorous documentation must be maintained. Unit testing must be done with an awareness that it may not be possible to test a unit for every input scenario that will occur when the program is run in a real-world environment.

### 11.3 BLACK BOX TESTING:

Also known as Behavioral Testing, is a software testing method in which the internal structure/ design/ implementation of the item being tested is not known to the tester. These tests can be functional or non-functional, though usually functional. This method is named so because the software program, in the eyes of the tester, is like a black box; inside which one cannot see. This method attempts to find errors in the following categories:

- Incorrect or missing functions
- Interface errors
- Errors in data structures or external database access
- Behavior or performance errors
- Initialization and termination errors

## 11.4 WHITE BOX TESTING:

White-box testing (also known as clear box testing, glass box testing, transparent box testing, and structural testing) is a method of testing software that tests internal structures or workings of an application, as opposed to its functionality (i.e. black-box testing). In white-box testing an internal perspective of the system, as well as programming skills, are used to design test cases. The tester chooses inputs to exercise paths through the code and determine the appropriate outputs. This is analogous to testing nodes in a circuit, e.g. in-circuit testing (ICT). White-box testing can be applied at the unit, integration and system levels of the software testing process. Although traditional testers tended to think of white-box testing as being done at the unit level, it is used for integration and system testing more frequently today. It can test paths within a unit, paths between units during integration, and between subsystems during a system–level test. Though this method of test design can uncover many errors or problems, it has the potential to miss unimplemented parts of the specification or missing requirements.

## 11.5 INTEGRATION TESTING:

Integration testing (sometimes called integration and testing, abbreviated I&T) is the phase in software testing in which individual software modules are combined and tested as a group. It occurs after unit testing and before validation testing. Integration testing takes as its input modules that have been unit tested, groups them in larger aggregates, applies tests defined in an integration test plan to those aggregates, and delivers as its output the integrated system ready for system testing. The purpose of integration testing is to verify functional, performance, and reliability requirements placed on major design items. These "design items", i.e., assemblages (or groups of units), are exercised through their interfaces using black box testing, success and error cases being simulated via appropriate parameter and data inputs. Simulated usage of shared data areas and inter-process communication is tested and individual subsystems are exercised through their input interface.

## 11.6 DATA VALIDATION TESTING:

Data validation is the process of ensuring that a program operates on clean, correct and useful data. It uses routines, often called "validation rules" "validation constraints" or "check routines", that check for correctness, meaningfulness, and security of data that are input to the system. The rules may be implemented through the automated facilities of a data dictionary, or by the inclusion of explicit application program validation logic.

## 11.7 PASSWORD TESTING:

The login process is tested with some separate login trials. Password is mainly meant for security. Incorrect will be screened. Also already created passwords won't be allowed to use again.

## 12. CONCLUSION

This web application provides facilities to conduct online learning through the country wide. It saves time as it allows a number of students to study themselves and increase their thirst of knowledge.

Administrator has the privilege to create, modify and delete books and its particular contents and remaining all. User can register, login and browse through the application and get them benefited.

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