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Prime Root Public School Information System

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Abstract

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The purpose of this thesis was to build an information system for the Prime Roots Public School (PRPS) which was established in 2009 as a model English medium school. The school is located in Toba Tek Singh, Pakistan. The school does not have a website through which parents, students and other stakeholders could get information about the school online. The main objective of this thesis was to develop a brief business plan for PRPS and with the help of this business plan, a website for the PRPS was developed.

The theoretical part of this thesis was carried out by defining the school environment, stakeholders, business processes, requirement specifications, functional requirements and non- functional requirements. As for the empirical part of the thesis, the study focused on defining the user story, use cases, requirement evocation and specifications, designing and implementation. In addition, the general features of ASP.NET Web Form were included in the technical background.

As the size of the application is very large, there was not enough time to implement the website completely during this thesis project. However, a prototype of the application is included in this thesis in addition to the business plan, requirement specification and design documents and the current version of the application which is still under development.

This thesis can be further benefitted by those who are planning to establish a school or a website to an educational institution.

Keywords
PRPS,Business plan, User requirements, ASP.NET WebForm.

Terms and Abbreviations

PRPS	Prime Root Public School.
PRPS IS	Prime Root Public School Information System
ASP.NET Web Forms	Form based web application development framework.

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1 Introduction

The person who gains some knowledge to teach it to others, he will be rewarded equal to seventy martyrs. (Al-Hadees)

Education does not merely mean academic education, and even that appears to be of a poor type. What we have to do is to mobilize our future and build up the character of our future generations. There is immediate and urgent need for the training of our people in the scientific and technical education in order to build up our economic life, and we should see that our people undertake scientific, commerce, trade and particularly, well planned industries. But, do not forget that we have to compete with the world which is moving very fast in this direction. (Quaid e Azam)

The PRPS was established in 2009 as a model English medium school. The school since then has gone through different stages of development, in 2009 number of students were 180, faculty members were 10 and have just one campus but in 2010, the number of student increases from 180 to 450 because of this they hire more staff so faculty member also increased from 10 to 25 and they open a new campus as well and now as the number of students increases year by year, so they build a totally new campuses separate for girls and boys in 16187.4 square meters.

For preparing a bright future of children, excellent grounds can be provided with well-equipped science and computer laboratories under the enthusiastic highly qualified team. For a better understanding of the Islamic history and the Holy Quran, main emphasis is given on the Arabic language. PRPS always showed 100% result in the matriculation examination along with this it also turns out student with exceptional qualities in co-curricular activities.

No doubt school is doing progress day by day, but school doesn't have its own website through which children and parent can up-to-date themselves regarding institute activities. As we know its era of technology and Pakistan is far behind to avail its benefit, I realize this fact when I reached here in Finland. Here all the school colleges and uni-

versities have their websites and every one can get information regarding the institute from anywhere.

So, I decided to make a website for PRPS as site is a virtual view book. It promotes institute lot easier if it has cutting-edge home page. Whether my mission is to attract students, parents, and or donors, but this site can be virtual view book to entice the viewer to learn more.

I will use a combination of custom ASP.net, CSS, jQuery, and other graphics tools to ensure page design elements such as navigation, drop-down menus, campus map, logo etc.

1.1 Goals, scope and constraints

The project goal has been divided into two parts. PRPS established in 2009 but still it's under development stages. My first goal is to build a brief business plan so its move on successfully in the future with little modification if required. The second goal is to develop a website.

Website will be developed by using ASP.NET, CSS, jQuery and graphics tools etc. The website contains all kind of information regarding school and its activities.
Business plan will cover the basic overview of the school and some educations flaws in Pakistan. Most of the time, I touch the things which are required for developing the online application in this thesis.

In the next step of thesis, it cover system requirements, design documentation and implementation process of the application. The system requirements specification will be formed by analyzing online application. Based on system requirements the application will be designed, and prototype will be developed.

Due to time constraint only few features will be implemented in the prototype during this project. Full implementation, testing and deployment, are not included in this project due to limited time.

2 Business Plan

With the help of PRPS website, parents who are interested to admit their children in any reputed organization come to know about PRPS. Students can also get updates related to school extra curriculum activities and time tables. It will be very helpful in marketing aspects also.

2.1 School Location

PRPS is located in Toba Tek Singh Pakistan. The proper address is Hazara Garden Canal Road, Toba Tek Singh Pakistan. All the faculty members are qualified and enthusiastic. School has well equipped computer and science laboratories; it provides an excellent ground for preparing children for a bright future. PRPS will also provide transport and hostel facility soon.

Figure 1. PRPS

2.2 Students

PRPS is playing key role by engaging students in physical and educational activities for their future. Teachers are not less than the facilitators for the students to help them in keen learning. Students contribute in the classroom discussions with freedom to express their ideas.

2.3 Organization

PRPS has currently 52 employees and 875 students. Director Shaees Akhtar is responsible for taking care of everything in PRPS.

2.4 The Stakeholders

Students, Teachers, Parents, other staff like office boy, peon, sweeper etc. are the primary Stakeholders for PRPS.

2.4.1 Teachers

Kid's behavior and future educational success are shaped in school and teachers are the one who plays the key role. Teacher is one who loves career in order for them to pass enthusiasm, to assists, and to provide a warm environment to students. Teachers are the second mothers for students because students spend a lot of time with them. It is the moral job of a teacher that he should look best for their students and help them raising in their goals to become successful in professional fields of society.

2.4.2 Parents

Affection without sentiment, authority without cruelty, discipline without aggression, humor without ridicule, sacrifice without obligation, companionship without possessiveness. (William E. Blatz.)

Parents trying to get their children into state best school, so they search a lot for it. After admitting their children into renowned school, it does meant parents involvement ends. All parents can help their children achieve their full potential by spending some time talking and reading with their children especially when their children are very young.

One can define successful parent involvement as the ongoing active participation of the parents for his or her child education. Children can be involved in the homework

with their parents help through discussion of school events, attending school functions, a voluntary appearance in classrooms, and helping children with reading.
However, education systems should find out a way to help the busy parents to become more active with their children's education.

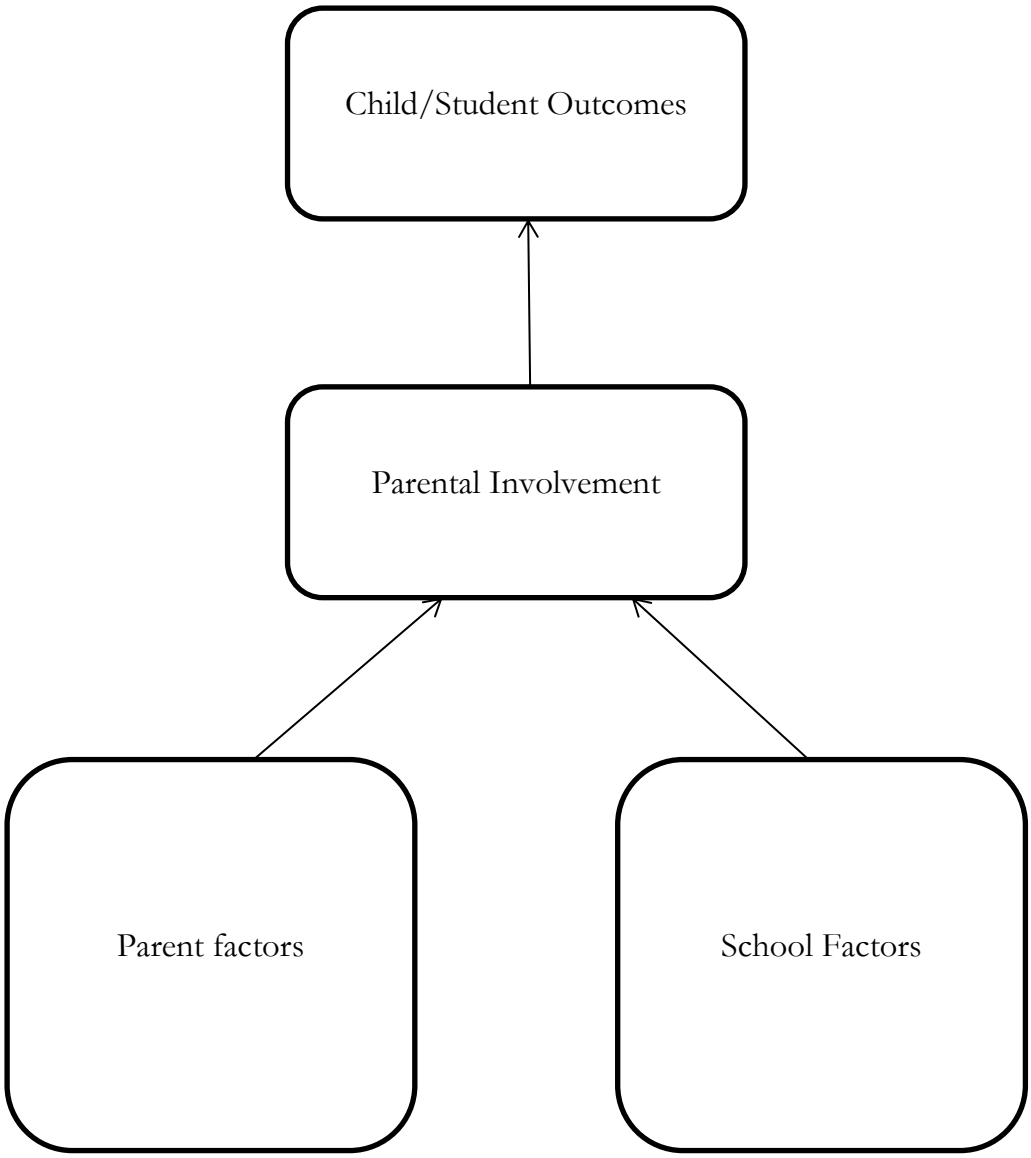


Figure 2. Model of Parent Involvement

2.5 Vision statement

PRPS vision is to develop a school community that helps in receiving quality education with broader learning opportunities for its students to become a productive member of their society. Students are targeted with the preparation of not only current but future success.

2.6 Mission Statement

PRPS aims to create a safe environment that fosters the mutual respect among administrators, teachers, students, and parents. It also aims to develop emotional growth for academic to support the structure of cultivating productive citizens.

2.7 Principal Statement

Quality education has always been a desire, and the goal of any developing nation. Many efforts have been made to extinguish this thirst, and we have tried in every way to quench it.

We are committed to giving excellence to our educational programs. We firmly believe that the talent is not lacking, but opportunity which we have to provide to our children will contribute to make this country prosperous to live with other developed nations. I invite students to grab this opportunity to work hard and engross themselves in marketing Science and Commerce and make their mark in the wake of international Competition for excellence in these fields. (Prof. Asima Kanwal, principal)

2.8 Pakistan Education system

In a survey conducted by Human development report for educated population Pakistan stood at 136th position. UNESCO has conducted a research by UN registered members and result shows only 49.9% people are educated.
There is a significant between the rich and poor society in Pakistan. Even there are some societies that judge people with their branded clothes and living standard.

The literacy rate in Pakistan is below 49.9%. In Pakistan, a person who could write his name is considered as literate. Due to rising costs of living in Pakistan the dropout rates in public school is high.

2.9 Role of PRPS

Primary aim of the PRPS is, to help the students in building their character and to train their intellect. PRPS aims to develop their students personalities with its primary focus on their character elements namely honesty, integrity, sincerity of purpose, discipline, fair play, and justice.

2.10 IT Involvement

The core of this project is to make a website and aware the students how to take benefits from technology. Using the cutting edge technologies and giving the best online school website to the school, teachers, students, parents etc. is my goal. The website will be updated timely later on.

During autumn 2013, the first version of a website will be launched and open for teachers, students and parents. The objective of this release to come to know their behavior and their expectation by taking feedback if everything goes well then more features will be added further on.

3 Technical Knowledge

Microsoft ASP.NET WEB Forms frame work 4.5 will be used for developing this application. There are many other options also open for me like php, ASP.NET MVC framework etc. I personally already having knowledge about Web Forms, during implementation it's more helpful for me to put advance features on it by putting little extra effort.

3.1 ASP.NET WEB Forms

Microsoft first came out with ASP.NET Web Forms from ASP which solved lots of problems by creating higher level abstraction over stateless web and simulated, meaningful model for web developers. In web forms concept like self-post back and view state is introduced. The most interesting part is no need to write a single line code for any web component.

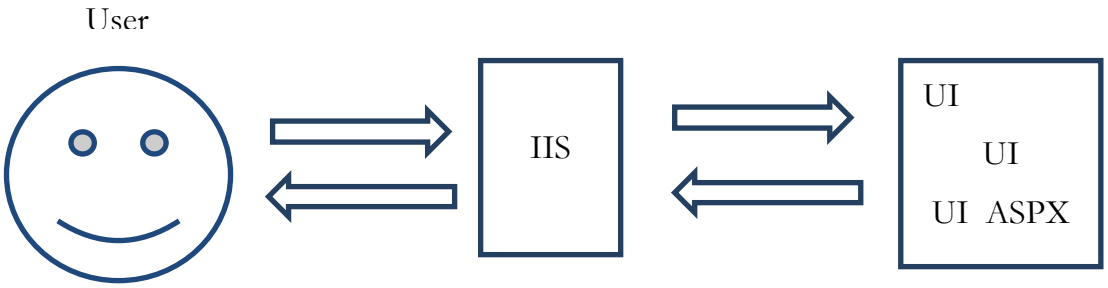


Figure 3. ASP.NET WEB Forms

3.1.1 Web Controls in ASP.NET Framework4.5

These are the standards controls of ASP.NET framework 4.5

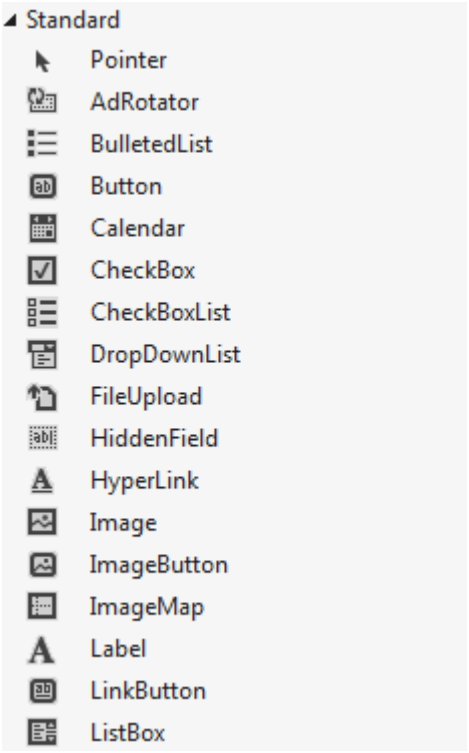


Figure 4. ASP.NET Standard controls

3.1.2 Advantages

The main advantage of ASP.NET server control, it detect the browser and generate appropriate html and if required JavaScript also. Besides this, there are many server controls come with data binding capabilities like Grid View and List View etc. which reduce the lots of efforts and coding as well.

Support for View State

As we know, HTTP is a stateless protocol. It was the main problem but Web Forms state-fullness is achieved by sorting last known state of every control within the client page itself in the form of the hidden field called vie state. (Sukesh, 2013.)

Event Driven Programming

Event Driven programming makes easily life of the developer, there is no need to rely on POST and Get methods for handling user interaction with server. For example, if

user drag the button from the control box and drop it on form, its much easy to generate the code block for handling users click on server by just double click on button.

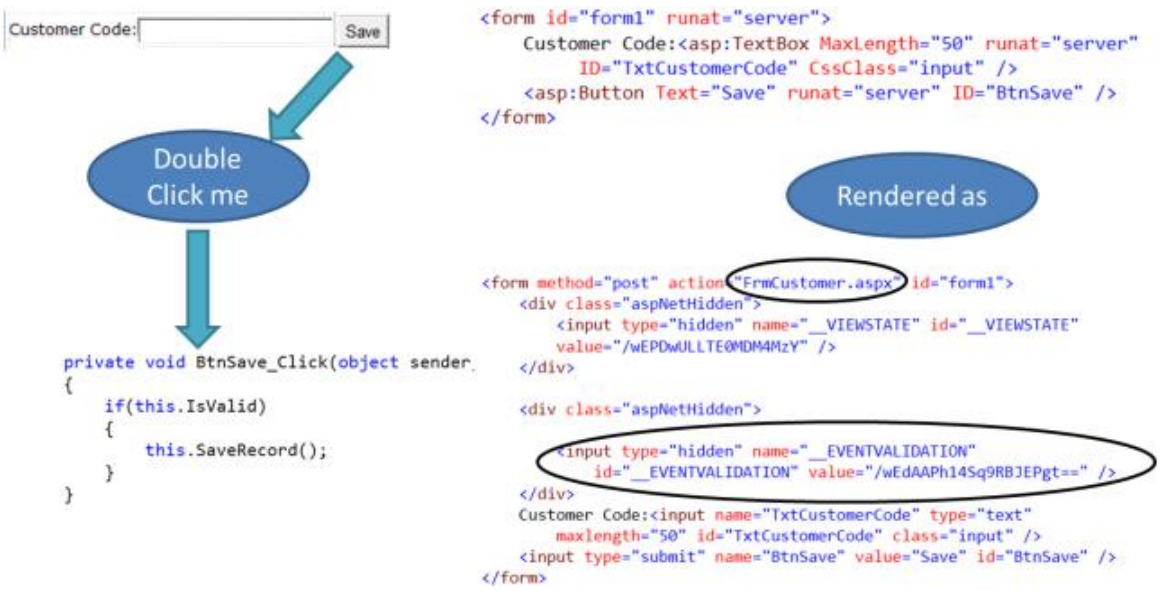


Figure 5. Event Driven Programming of save button

Rapid application development

ASP.NET Web Forms increases the efficiency of development of the web application by giving rich server controls, event driven model and view state etc.

Less learning effort

With the help of strong server controls and view state developer can build real world application with even less HTML and JavaScript skills.

Some other features are:

- The ability to set Meta tags.
- More control over view state.
- Support for recently introduced browsers and devices.

- Easier ways to work with browser capabilities.
- Support for using ASP.NET routing with Web Forms.
- More control over generated IDs.
- The ability to persist selected rows in data controls.
- More control over rendered HTML in the Form View and List View controls.
- Filtering support for data source controls.
- Enhanced support for Web standards and accessibility.
- Project template changes.

(Microsoft 2013.)

3.2 ASP.NET Architecture

The following figure explains how the ASP.NET Web forms application responds to a browser request and the interactions happen between .NET components.

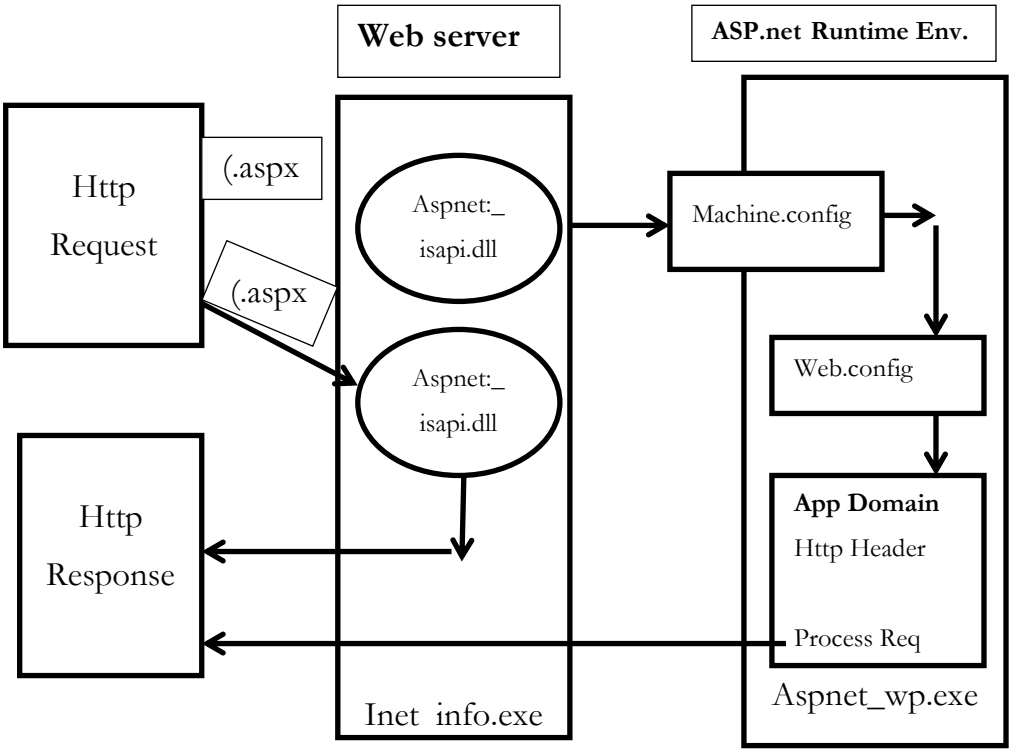


Figure 5. ASP.NET WebForm execution lifecycle

4 Requirements and Design

PRPS is ruled by Shaees Akhtar. He is the person who gives me guidelines. What he needed in the website. As the business is located in Pakistan, so I used my phone and some Apps for communication with him. PRPS is an organization who believes on quality in education system, and their slogan is "Quality is expected and nothing less is Acceptable". PRPS Information System is a portal for the students, teachers and parents. In the first phase I am trying to put all the information regarding school. So, everyone can come to know about the school rules and regulation, results, events, admission criteria etc. things from his/her door steps. Later on in the next phase I will upgrade this website so, through website teachers can communicate with students by uploading assignments and schedule of their lectures, results etc. Student can also after completing their assignments upload it so teacher can grade it.

During the requirements analysis and design, I analyzed the application domain, requirements to develop this website. I know during the implementation phase I will face many challenges and with time to time new requirements will be discover, then the documentation will be upgraded. Its means this analysis, design and implementation process will be rehearsed.

4.1 Users

Here are the users who actively use this website. By students, teachers and parents PRPS information system is used.

4.1.1 Students

Students are the key users of this information system. They use it to check their assignments, timetables, school events, etc. After completing the assignment they can upload it online and also can check their grades.

4.1.2 Teachers

Teachers are also active users as after class they will upload their lecture and assignments for the students and even he opens the discussion board, where students can share their views about the topic of conversation. He also put the results of assignments online.

4.1.3 Parents

Parents are not as many active user of this information but somehow this is really good portal for them. They can check the schools results and activities. Especially this website will be very useful for those parents who are searching suitably reputed school for their kids. From this website, they come to know about school and its repute.

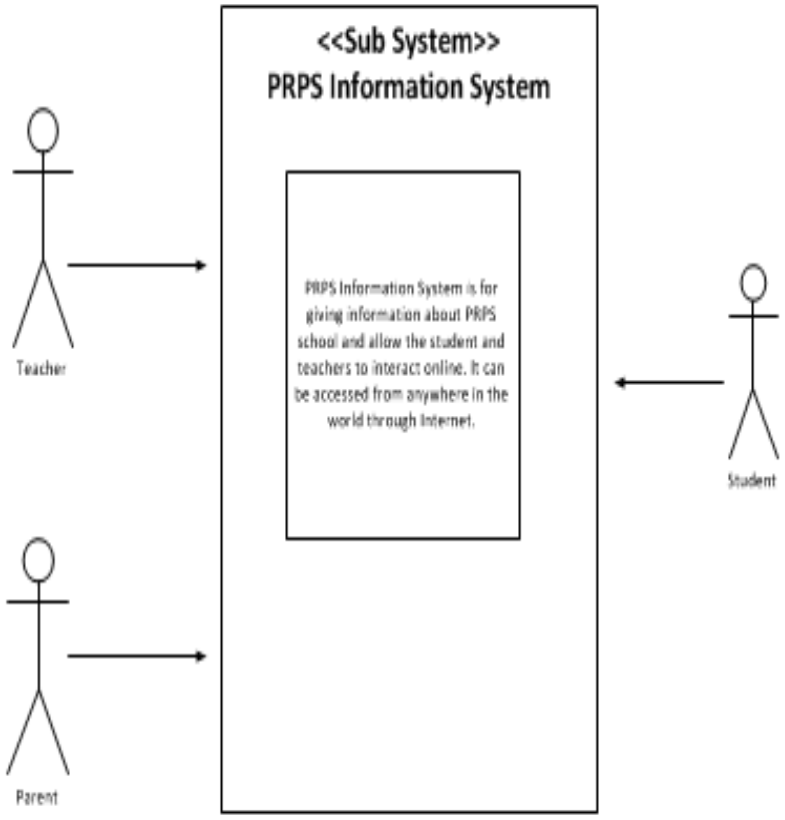


Figure 6. System Users

4.2 Business Use Cases

There are four main business use cases for PRPS Information system. They are following-

4.2.1 School News

System Administrator every day updates the news and events regarding school. So the users can get up to date information.

4.2.2 School Results

Teacher can upload the result by himself or by giving the record to system administrator. By this, student gets their results online.

4.2.3 Class Time table

System administrator uploads timetable in the beginning of the session. So if a student lost its timetable hard copy, he can easily get it online.

4.2.4 Fee Payment

From this, the administrator comes to know about the fee defaulter students, and they can call to their parents and inquire about fee issue.

4.3 System Structural Design

Systems Architecture is a response to the conceptual and practical difficulties of the description and the design of complex systems. (Boris, G). Student, teacher, system administrator and parent will use PRPS information sys-tem application through internet browser.

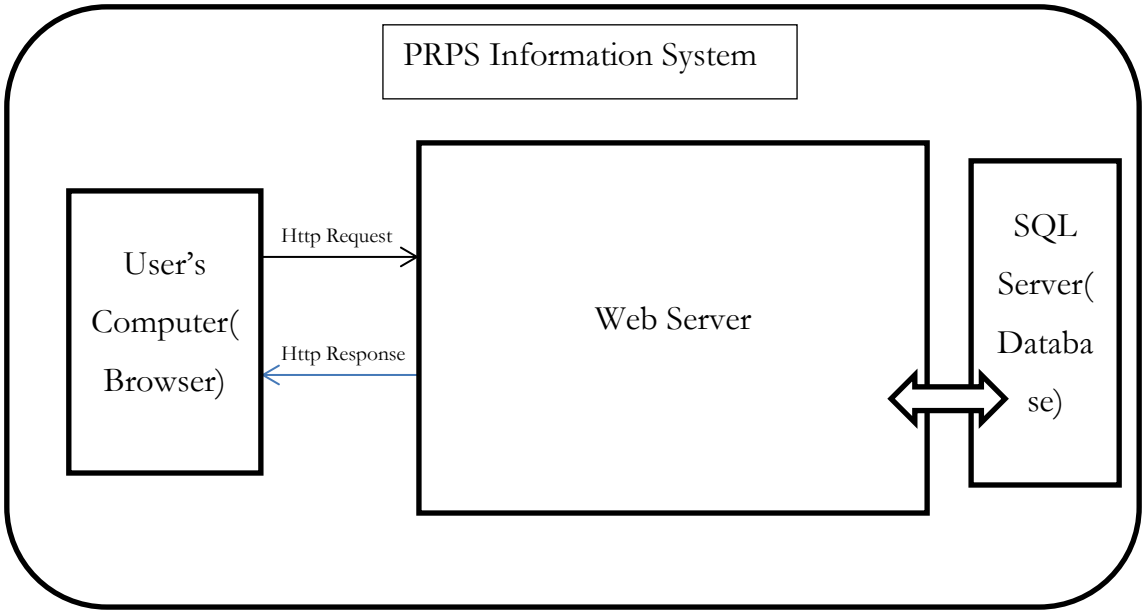


Figure 7. System structural design

4.4 Requirements evocation

In Requirements evocation/elicitation process, software developer gathered the requirements by working with all kinds of stakeholders or end users who will interact with the system or will be affected by the system (Sommerville 2004, 146).

There are several ways to collect the system requirements. Some of them are:

- Interview
- Brainstorming
- System analysis
- Reverse engineering
- Prototyping
- Surveillance

All of them are effective in different conditions. Sometimes or you can say mostly multiple techniques are used to collect or discover the requirement.

In this PRPS information system case, I use brainstorming, system analysis, and prototyping.

4.5 Requirements Specification

'Use case' and 'user story' are two common techniques use to specify the user requirements.

A use case defines a sequence of actions that yield an observable result of value. Use cases provide a structure to express functional requirements within the context of business and system processes. Use cases can be represented graphically in a diagram and a textual document. (IBM 2013.)

'Use Case' modeling requires very details description of the interaction between system and actors, and picture of data processing and step by step interactions. Every Use case has triggers and goals, and it illustrates all the possible scenarios or path from trigger to goal. It uses some unstructured text to fit into the required specification template. Use case also covers bigger scope than the user story does. (Rouse, 2007.)

A user story interconnects functionality that is of value to the consumer of the product or system. Each user story should simply state what a user wants to do with a feature of the software and describe it from the user's viewpoint. When you write user stories, you should focus on who the feature is for, what they want to achieve, and why. You should avoid descriptions that specify how the feature should be developed. (Microsoft 2013b.)

I select the user story for describing the requirements because it's simple and easier way to express.

As a Teacher

As a Teacher, I want to browse the site to get news regarding school.
As a Teacher, I want to add lectures notes.
As a Teacher, I want to upload assignments.
As a Teacher, I want to mark the assignments.
As a Teacher, I want to update grades.

As a Teacher, I want to open Discussion Board.

As a Teacher, I want to update my schedule.

As a Teacher, I want to send email to higher administrator regarding some issues.

As a Teacher, I want to send email to students for course updates.

As a Teacher, I want to know about vacant vacancies.

As a Student

As a student, I want to browse the site to get news.

As a student, I want to download lecture material.

As a student, I want to download assignments.

As a student, I want to upload my assignment.

As a student, I want to check my result.

As a student, I want to check the timetable.

As a student, I want to put comments on the discussion board.

As a student, I want to know about the extracurricular activities.

As a student, I want to know about the school timing.

As a Parent

As a Parent, I want to browse the website to get to know about school.

As a Parent, I want to get about school Events.

As a Parent, I want to know about results.

As a Parent, I want to know about faculty.

As a Parent, I want to know about the school activities.

As a Parent, I want to know about the facilities provided by school.

As a parent, I want to know about the rules and regulation of admissions.

As a parent, I want to know about the Admission start and end date.

As a Parent, I want to know about school opening and closing timing.

As a Parent, I want to know about school extracurricular activities.

As a System Administrator

As a System Administrator, I want full access to the data base and website content.
As a System Administrator, I want to update all content according to the given instruction every day.
As a System Administrator, I receive the online application of new student and register it.
As a System Administrator, I receive the online application of new vacancy and deliver to the director.

4.6 Use case diagram

I tried to draw the use case diagram to summarize the use cases and their relationship with the user. In diagrams Oval shape are representing actions done by the actor.

4.6.1 Parent as an Actor

The actor 'Parent' is performing several actions in this diagram.

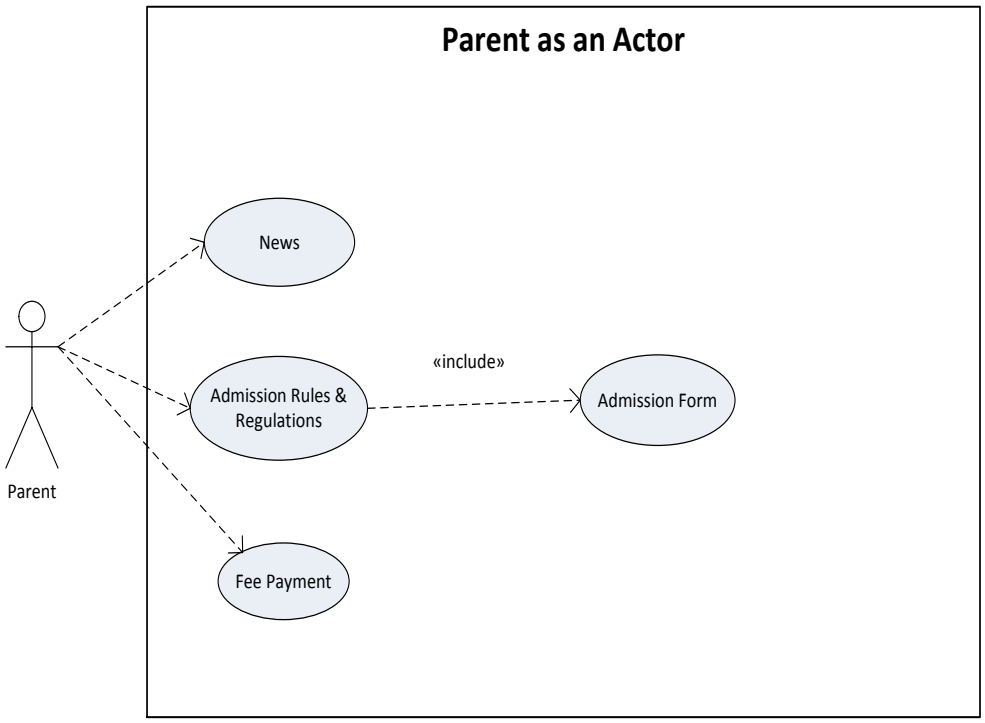


Figure 8. Use Case diagram (User: Parent)

4.6.2 Student as an actor

The actor 'Student' is performing several actions in this diagram.

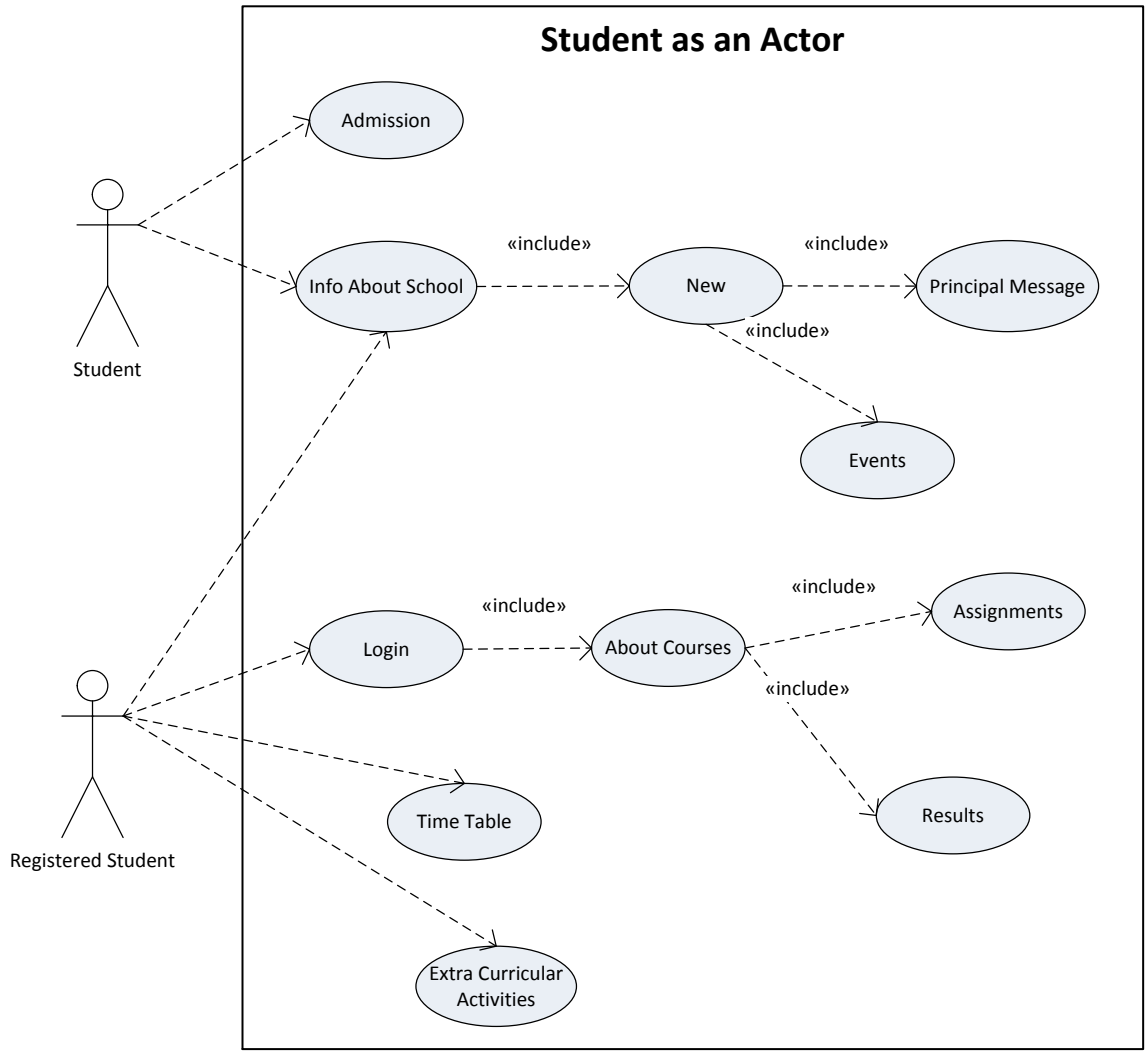


Figure 9. Use Case diagram (User: Student)

4.6.3 Teacher as an actor

The actor 'Teacher' is performing several actions in this diagram.

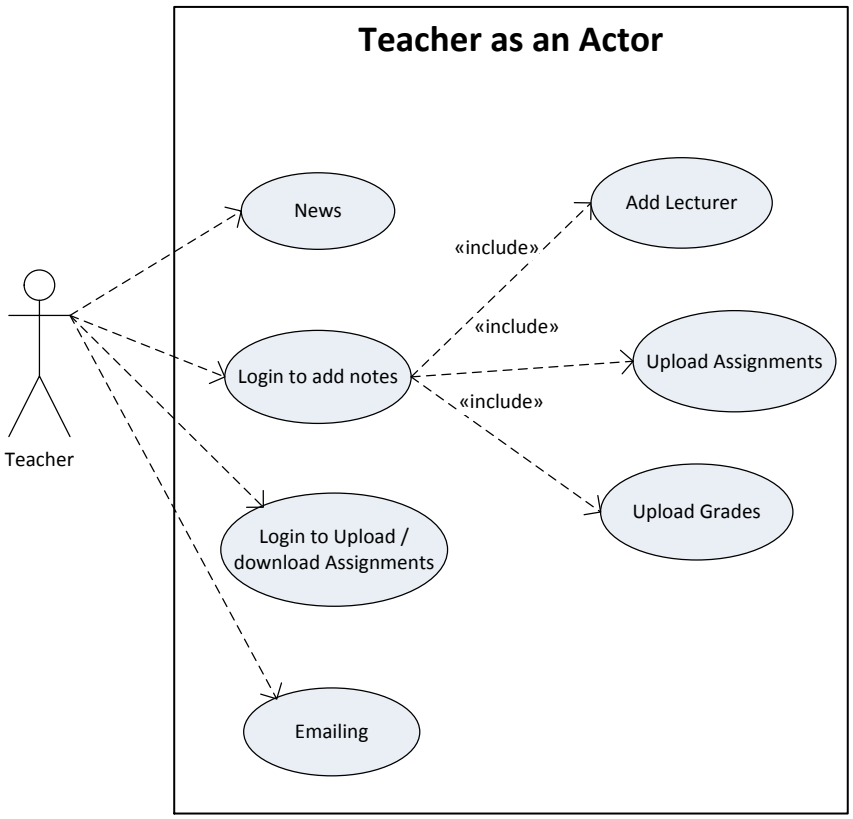


Figure 10. Use Case diagram (User: Teacher)

4.6.4 System Administrator as an actor

The actor 'System Administrator' is performing several actions in this diagram.

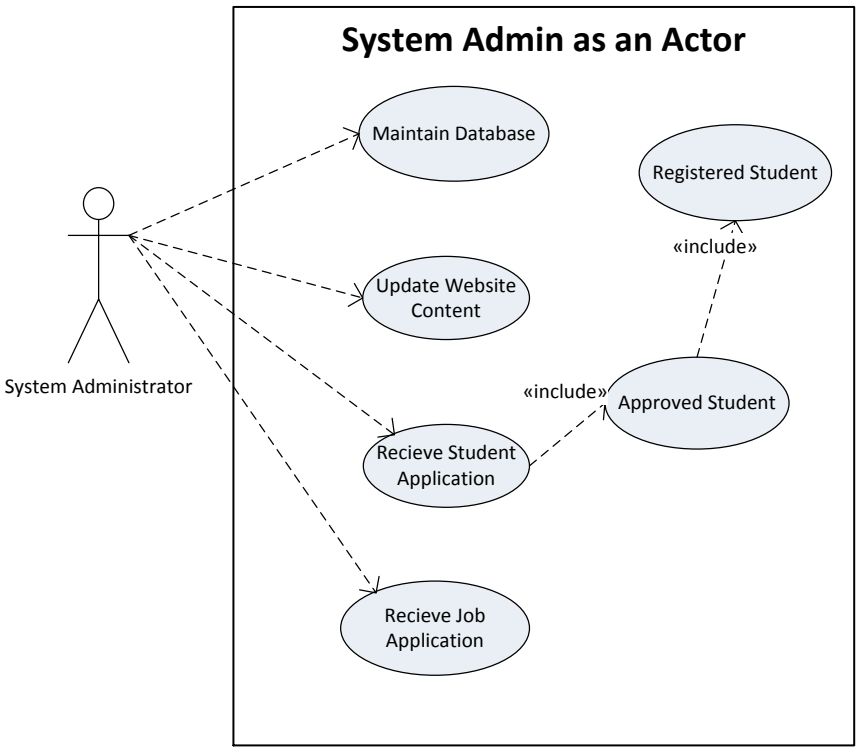


Figure 11. Use Case diagram (User: System Admin)

5 Implementation

During the implementation I used the scrum methodology. According to user stories I created product backlog. In a scrum the development is divided into three sprints. In the first sprint, I will implement the common page layouts, putting browsing related stories on them, putting animation using java script /jQuery and will create a database which will be modified in second sprint as well according to the requirement. During this thesis I try to implement first sprint fully functionally. I divide whole project in different user stories and give the priority serial in the product backlog.

After finishing the first sprint almost layout of all pages has been designed to have a same look through application pages using master pages. During the implementation of the first sprint, a main problem which I faced was less commands on CSS. I put much time to learn it and try to fix problems. The item which was left during first sprint, I moved them to the second sprint product backlog.

6 Conclusion

Thesis is based on a school located in Toba Tek Singh, Pakistan. School is not very old they started in 2009 and shows very good result every year. They do not have any website or online portal as normally in Pakistan very few schools has website. So, I decided to make worthy product for this school so the students, teachers, parents and other staff can access things related school from anywhere in the world on internet. I started thesis to make business plan and requirements specification for making website for PRPS. I am the only person who is doing everything for this project just by taking information from the owner of the school, teachers and some students who know a little bit about websites. I know, initially teachers and students will find a full version of this application bit difficult, as they are not familiar with online system. But with little training, I think they will get completely command on it and can get benefits from it.

I am not professional in writing business plan and requirement documents, I tried my level best to write everything clearly so readers may not find difficulty. The requirements specification document is not completed yet as it is an iterative process and will modify many times until the final product released. I am on a first sprint, and so for second and third I have to add more things in it. I know with more research my understanding will become more vibrant, and I will write more standardized documentation.

As the school is already in the running process, so I couldn't find much difficulty to get information about it. In the business plan, I wrote about the business location, about organization itself, stakeholder (parents, teachers, and students), and additional stake holder. I tried to define all these stake holders. In the document I also write it down about Pakistan education system and mention some flaws of education in Pakistan so; the organization keeps focus to cutoff those flaws.

In my thesis, I tried to draw figures, to clear my understanding in visual form with fewer texts. First I defined the users of the system and then, I selected the user story for describing the requirements of the users from the system because it's simple and easier

way to express business processes. I used the combination of three requirement evocation brainstorming, system analysis, and prototyping.

I used ASP.NET Web Form for developing this application and used bootstrap for page design. In the first sprint, I just design the database using SQL server 2008, design master pages so the layout of all pages looks same and some child pages. In the school we used scrum methodology in few courses to make projects so, here too I preferred scrum. During first sprint, I tried to do all items of the product backlog but due to less knowledge of CSS some items left. Undone items have been moved to the second sprint which will be carrying on during second sprint.

6.1 Future Plan

After completing thesis, I will continue second and third sprints to finalize the application. I know during implementation many changes occur so; I will update the requirements document as well accordingly. I don't know the exact time when I finish it, but hopefully final version will release by end of January, 2014.

6.2 Personal Enhancement

In last three years, I was studying some courses, and always the question arise in my mind was, what is the use of these all courses? How they all are linked together? What is the purpose of teaching business courses with programming courses? But by doing this project, I really come to know the exact answer of all my questions. The thesis was PRPS Information system, which means I was supposed to build a web application for school. When I started then I realize that I need business plan, requirement documentation etc. With the help of knowledge which I got from all business courses, I somehow succeed in writing these documents. Now my project is in the development process. Practically I implemented my all skills which I got during my studies to make this project progressive.

During this, I have realized the importance of a project plan for the success of the project. Because if you have a well-defined project plan and business plan before begin-

ning the project then it goes very smoothly although sometime their need to change the project plan and requirement documents during the project to meet the customer expectation. I made my project plan before beginning of the project, and I made changes in it many times especially the time plan.

In the school during course projects teachers gave us full assistant and requirement documentation to complete the project. But during this project I was alone and did all things by myself using the help of those documents. I read many articles, reading to complete my writing. During this project when I was analyzing requirement I faced many difficulties but with the help of the school owner and some teachers I am ready to express all the requirements what they need.

I am very keen to learn new technology, during this project I come to know about the latest technology introduced by Microsoft MVC 3. I just read about it and now think to do some online course. As nowadays, almost all companies use this framework. It is easy to use and work as a more reliable tool. During programming courses we were taught ASP.NET Web Forms and I did my implementation using same techniques. Further after completing thesis along with completion of this project I will look for a job in the market and I am very confident now after getting this much knowledge and expertise to get in.

References

Boris, G. What is system architecture URL: http:// www.lix.polytechnique.fr/~golden/systems_architecture.html. Accessed 23 Sep 2013

Sukesh, M 7 Feb 2013. WebForms vs. MVC. URL: http://www.codeproject.com/Articles/528117/WebForms-vs-MVC#What_is_Web_Forms. Accessed 22. April.2013.

Microsoft 2013 What's New in ASP.NET 4 and Visual Web Developer URL: http://msdn.microsoft.com/en-us/library/s57a598e%28v=vs.100%29.aspx#aspnet_web_forms. Accessed 14 May 2013.

Sommerville, I. 2004. Software Engineering. 7th ed. Pearson Education Limited

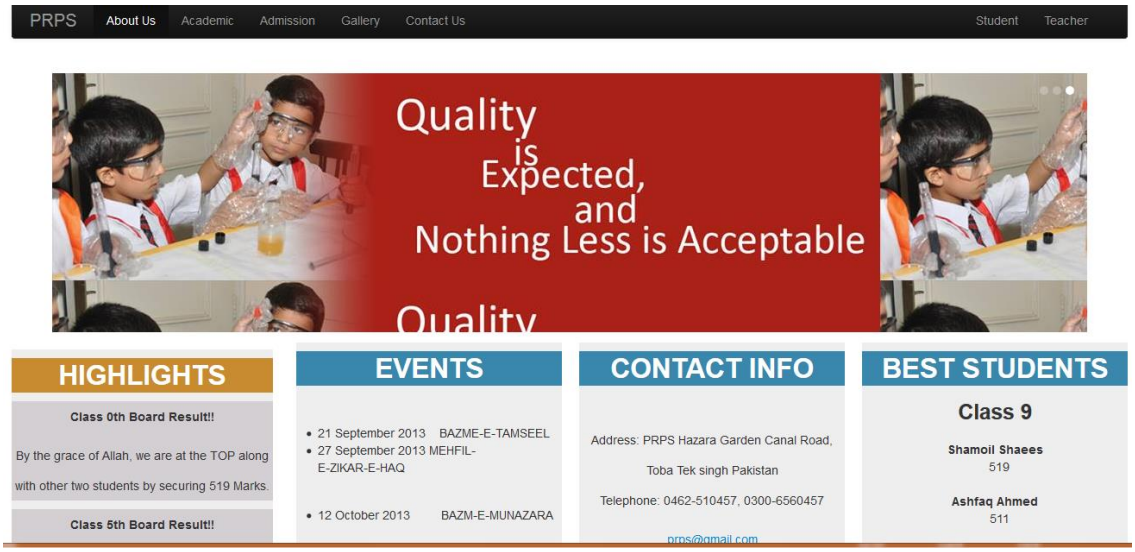
IBM 2013 Defining Use Cases URL: http://pic.dhe.ibm.com/infocenter/rpcmpose/v2r0/index.jsp?topic=/com.ibm.rational.rrc.help.doc/topics/t_define_ucs.html.Accessed: 9 Sep 2013.

Rouse, M. Apr 2007. Use Case. URL: http://searchsoftwarequality.techtarget.com/definition/use-case. Accessed: 9 Sep 2013.

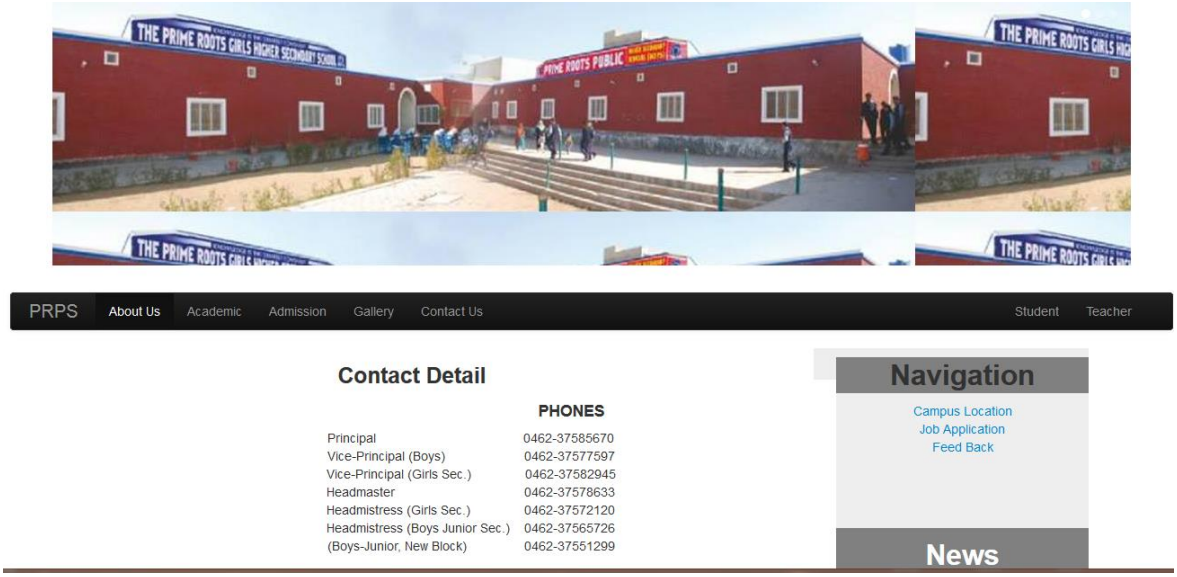
Microsoft 2013a Defining a user story. URL: http://msdn.microsoft.com/en-us/library/dd380634.aspx. Accessed:10 Sep 2013.

Sayed Rakibul, H. Oct 2013. http://publications.theseus.fi/bitstream/handle/10024/58478/Thesis_SayedRakibulHasan.pdf?sequence=1

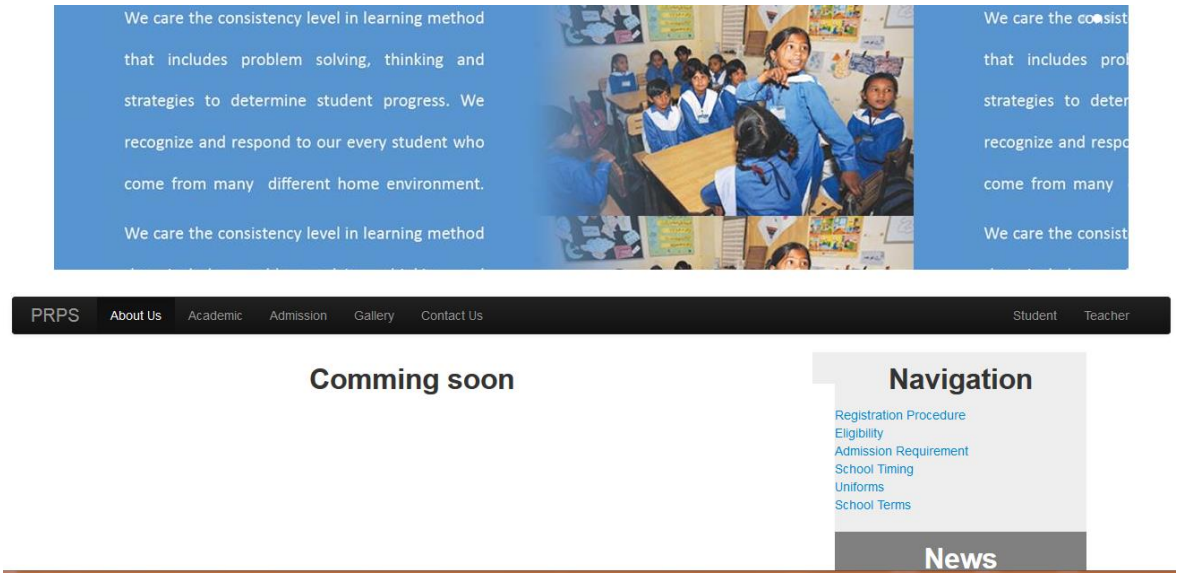
Attachment 1. Landing Page of the current system



Attachment 2. Contact Us of the current system



Attachment 3. Admission Page of the current system



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7 Functional Requirements Summary

7.1 Introduction

The PRPS was established in 2009 as a model English medium school. The school since then has gone through different stages of development, in 2009 number of students were 180, faculty members were 10 and have just one campus but in 2010, the number of student increases from 180 to 450 and faculty member also increased from 10 to 25, and they open a new campus as well and now as the number of students increases year by year so they build a totally new campuses separate for girls and boys in 16187.4 square meters. For preparing a bright future of children, excellent grounds can be provided with well-equipped science and computer laboratories under the enthusiastic highly qualified team. For good understanding of the Islamic history and the Holy Quran main emphasis is given on the Arabic language. PRPS always showed 100% result in the matriculation examination along with this it also turns out student with exceptional qualities in co-curricular activities.

This organization currently does not have any website; they are spreading information manually. With the help of website, it's easy for them to do school publicity from their office. The main controller of the system will be the PRPS director himself or the office assistant.

The application will be installed in one computer only and used with a local web browser. The users will be the office assistant, the director, students, teachers, parents. The future expectations and expansions will be taken into consideration when building the system.

7.2 Environment

PRPS is located in Toba Tek Singh Pakistan. The proper address is Hazara Garden Canal Road, Toba Tek Singh Pakistan. Look at Introduction for more information about the environment.

7.3 The Stakeholders

Users

Director

The Director is responsible for making rules and regulation and policies.

System Administrator

System administrator maintains the server, database and web application. She/he is responsible for security and backups.

Other stakeholders

Teacher

Kid's behavior and future educational success are shaped in school and teacher is the one who plays a key role. Teacher is one who loves career in order for them to pass enthusiasm, to assists, and to provide a warm environment to students. Teachers are the second mothers for students because students spend a lot of time with them. It is the moral job of a teacher that he should look best for their students and help them rising in their goals to become successful in professional fields of society.

Student

PRPS is playing key role by engaging students in physical and educational activities for their future. Teachers are not less than the facilitators for the students to help them in keen learning. Students contribute in the classroom discussions with freedom to express their ideas.

Parents

Parents trying to get their children into state best school, so they search a lot for it. After admitting their children into renowned school, it does meant parents involvement ends. All parents can help their children achieve their full potential by spending

some time talking and reading with their children especially when their children are very young.

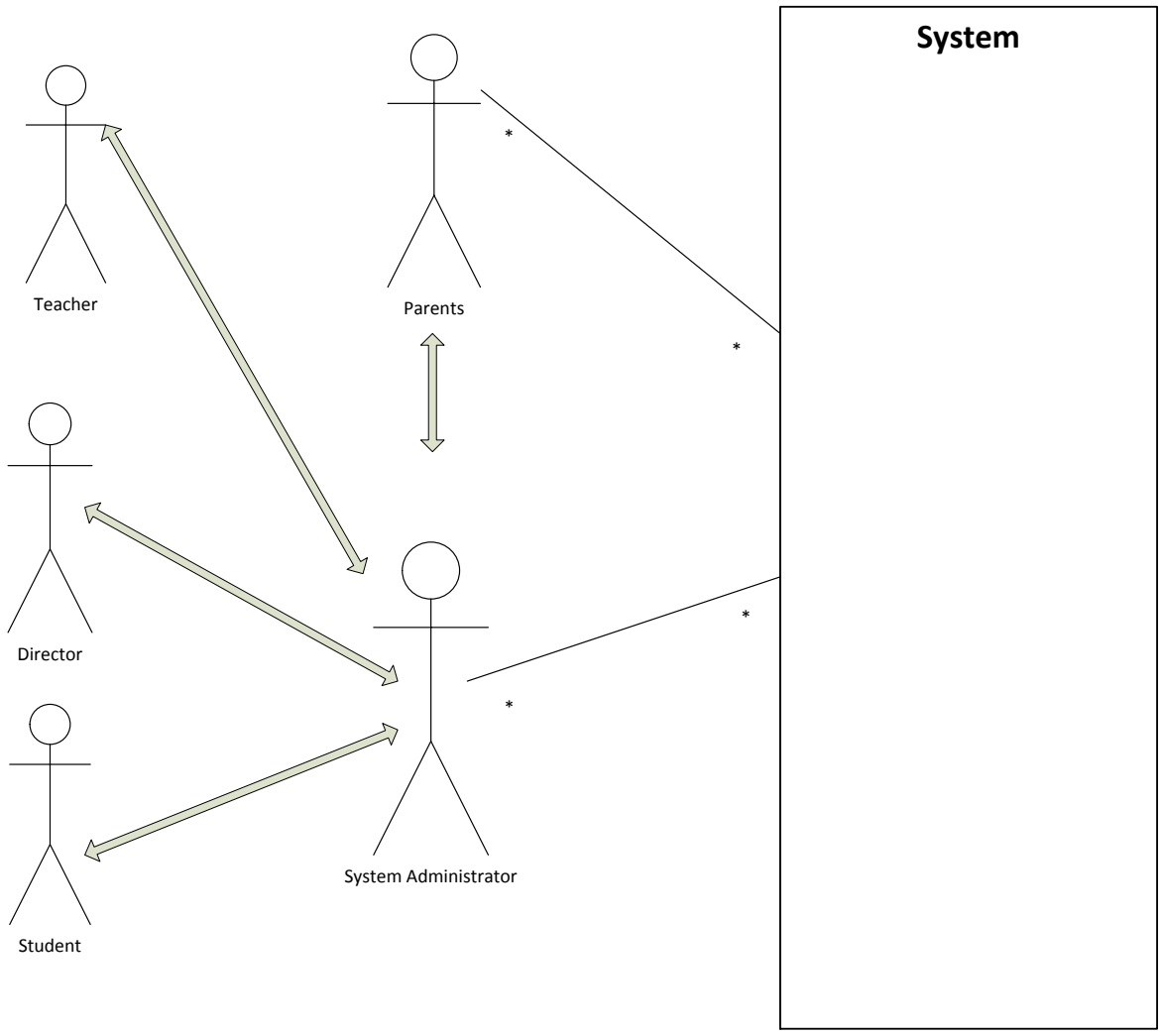


Figure 1.3 Stakeholder Diagram – The Stakeholders and usage of system (line) and communication (arrow) between the stakeholders.

Additional Stakeholders

In addition to the users there might be other stakeholder groups that are not discussed this time.

8 The Information in the PRPS Information System

8.1 Information content

According to the organization needs, the following information (attributes) has been decided to be stored in the system. (Out of Scope)

Data Dictionary – Entity type descriptions

Entity type name	Description	Synonyms/Aliases	Occurrence	Min / Medium / Max amount	Volatili-ty
Teacher	Permanent employee of PRPS.	PRPS members and Asset.	When teacher get vacancy they be-come member of PRPS.	50/ 100 / 200	+ 10 a year
Student	The children which comes in PRPS for getting better education.	PRPS Asset.	Student joins the PRPS to get a better education. Students con-tribute in the classroom dis-cussions with freedom to ex-press their ideas	500 / 1500 / 5000	+ 14 a year
Subjects	Subjects which are teach by teachers.	courses	Subjects like mathematics, Urdu, English, science etc.	20 / 40 / 60	+/- 100 a year

Parents	whose children are studying in school	Guardian	Mother, Father, uncle, aunt are the guardian of students.	1/2	

Table 2.1.1 Data Dictionary. Entity type descriptions

Data Dictionary – Attribute details

Entity type name	Attribute	Description	Data type and length	Required	Special value domain?
Teacher	teacherID	Teacher Id it must be unique	number	Yes	-
	tLastName	Teacher last Name	Text	Yes	-
	tFirstName	Teacher first Name	Text	Yes	-
	phoneNo	Teacher Phone Number	Text	Yes	
	Qualification	Degree	Text	Yes	
	Sex	Male or female	Text	Yes	CHECK VALUE IN ('M','F')
	tEmail	Email address of teacher.	Text	Yes	
Student	sFirstName	First name of student	Text	Yes	-
	sLastName	Last name of student	Text	Yes	-
	sex	Male or female	Character	Yes	CHECK VALUE IN ('M','F')

	studenID	Id of student	Text	Yes	
	phoneNumber	Contact Number of Student	Text	Yes	
	email	Email address of the rider for notifications and results	Text	Yes	ASP.NET Email validator regular expression
Parents	pfirstName	first name	Text	Yes	-
	pLastName	last name	Text	Yes	-
	Sex	Male or Female	Character	Yes	CHECK VALUE IN ('M','F')
	phoneNumber	Contact Number.	Text	Yes	-
	email	Email Id for contact.	Text	Yes	
Subjects	subjectName	list of subjects	Text	Yes	

Table 2.1.2 Data Dictionary, Entity type attribute details

8.2 Consideration for software

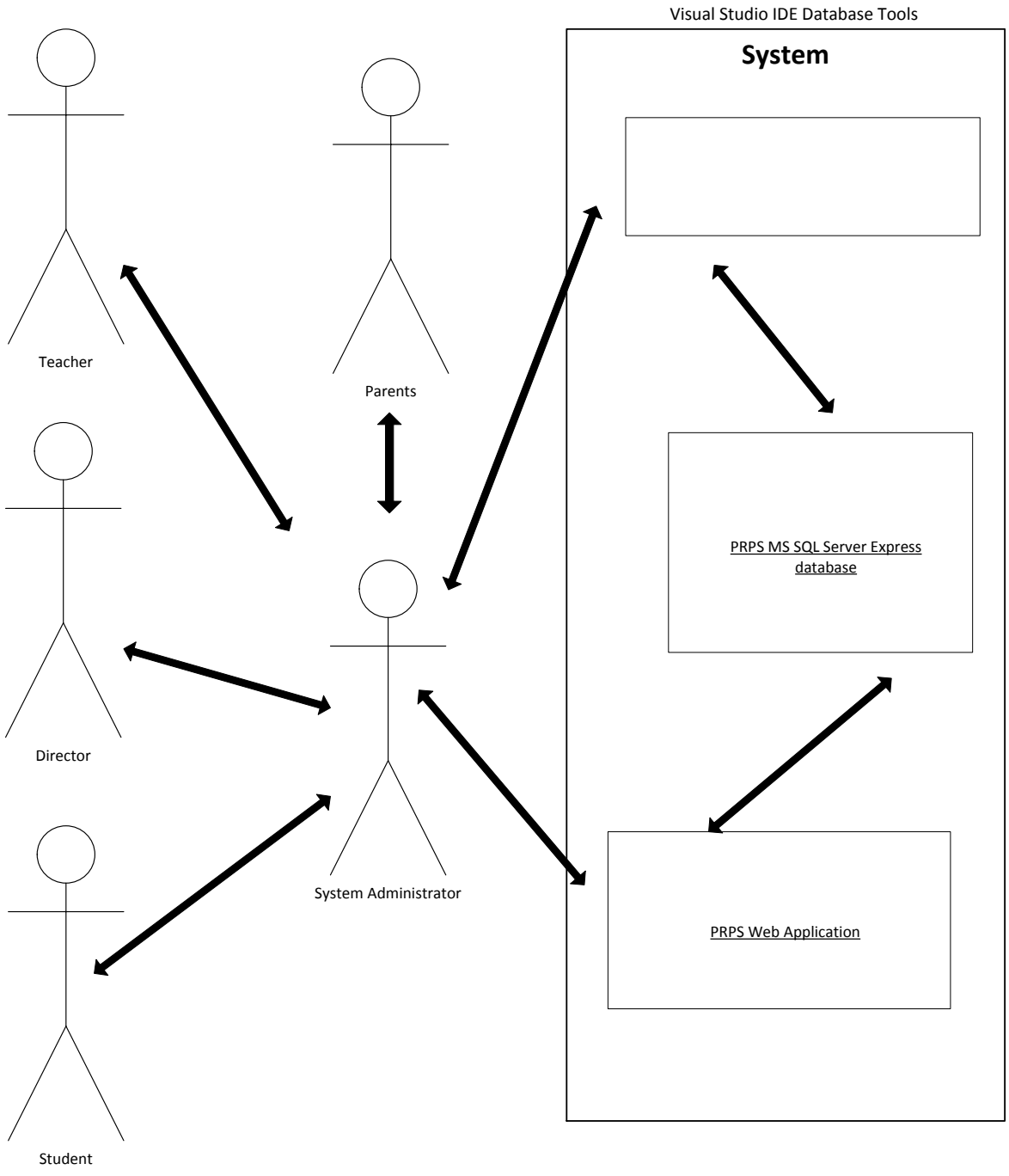
During the first development/implementation cycle the application should manage the following information.

8.3 Actor's information access privileges

Information -> Actors below	Student	Teacher	Subject	Parent
System Admin-istrator	CRUD	CRUD	CRUD	CRUD
Key: C=Create R=Read U=Update D=Delete				

Table 2.3.1 Actors and their information access rights.

System Architecture

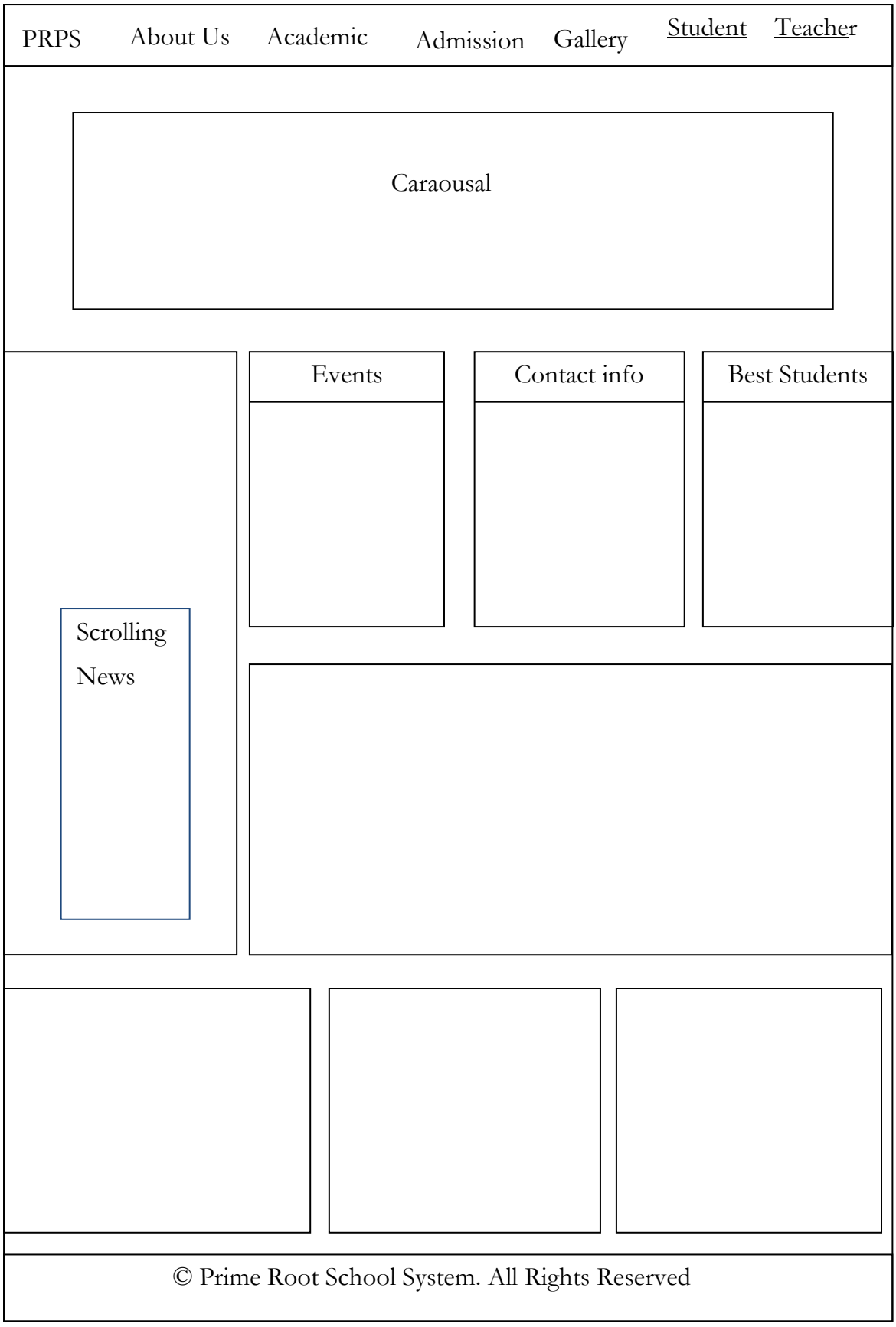


Picture 2.3.1 The system Architecture

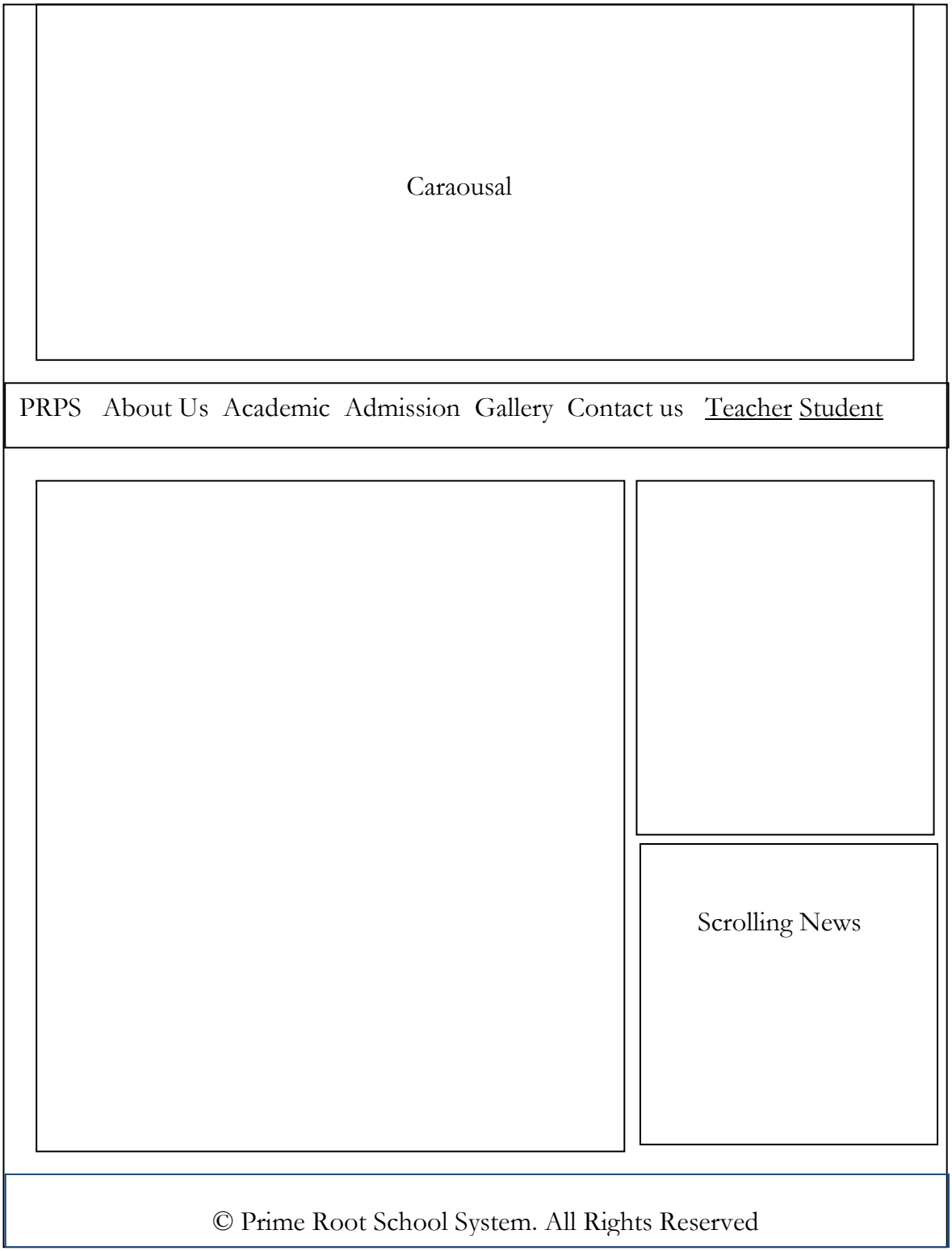
9 User Interface Screens-Mock Ups

Mockups are the pictorial design for the software in the planning process. In web development, the developer draw the user interfaces and shows it to the customer how it looks like. In simple words we can say it is page layout of the application from which developer get the feedback from customer and make changes according to his/her anticipation. It is very helpful in evaluating design, testing and usability.

9.1 Home Page / Landing Page



9.2 About Us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Scrolling News
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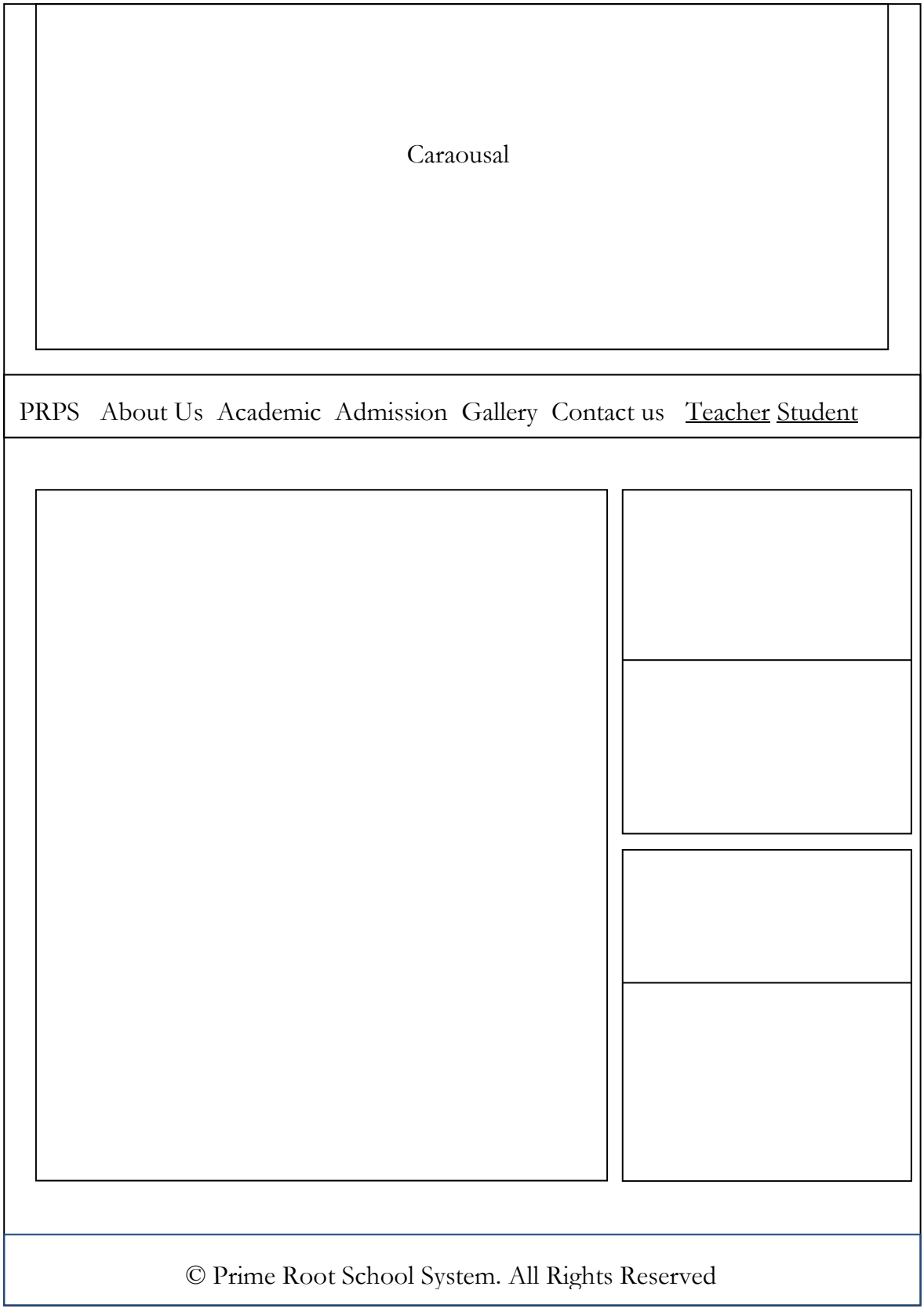
9.3 Academic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PRPS About Us Academic Admission Gallery Contact us Teacher Student
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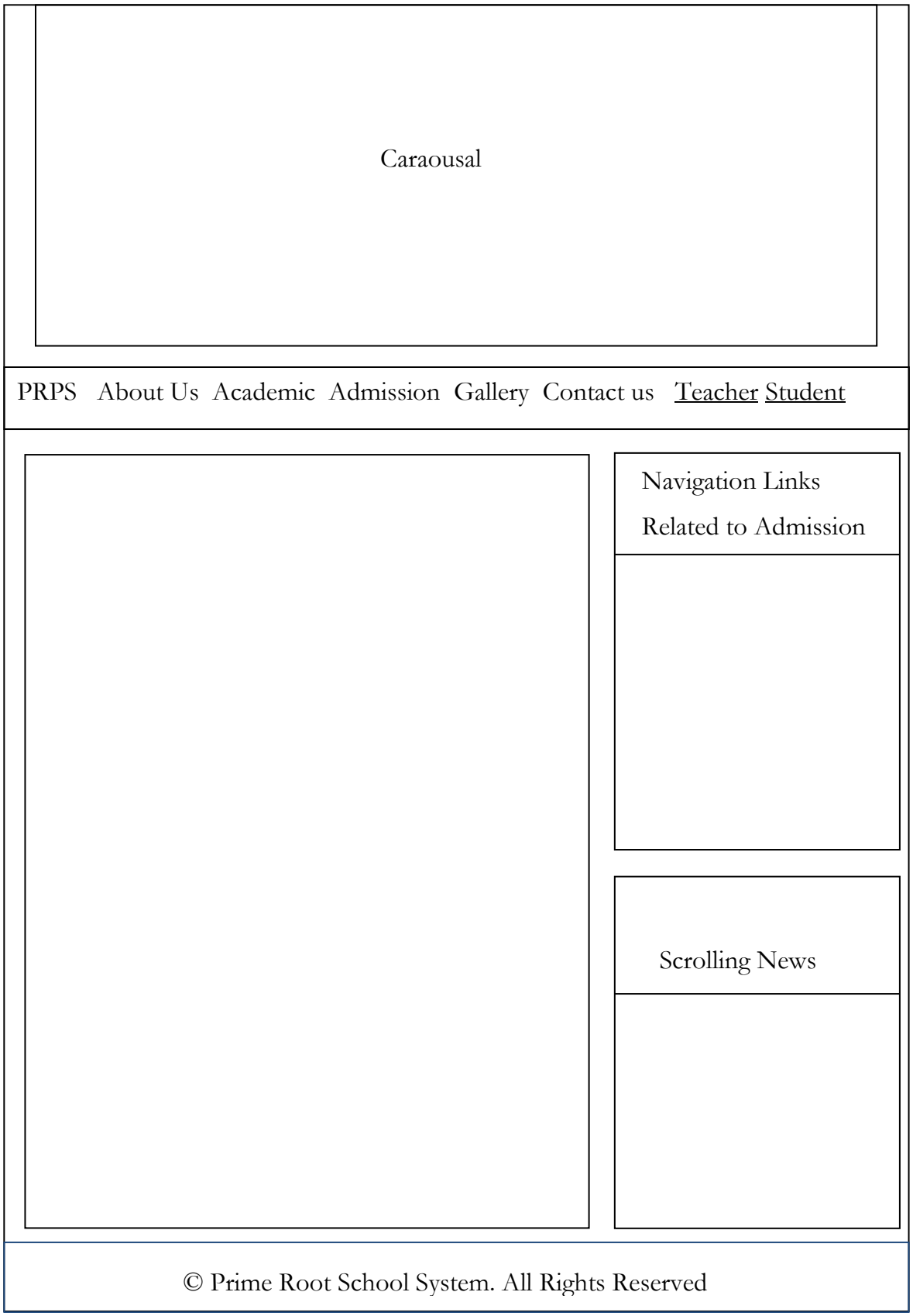
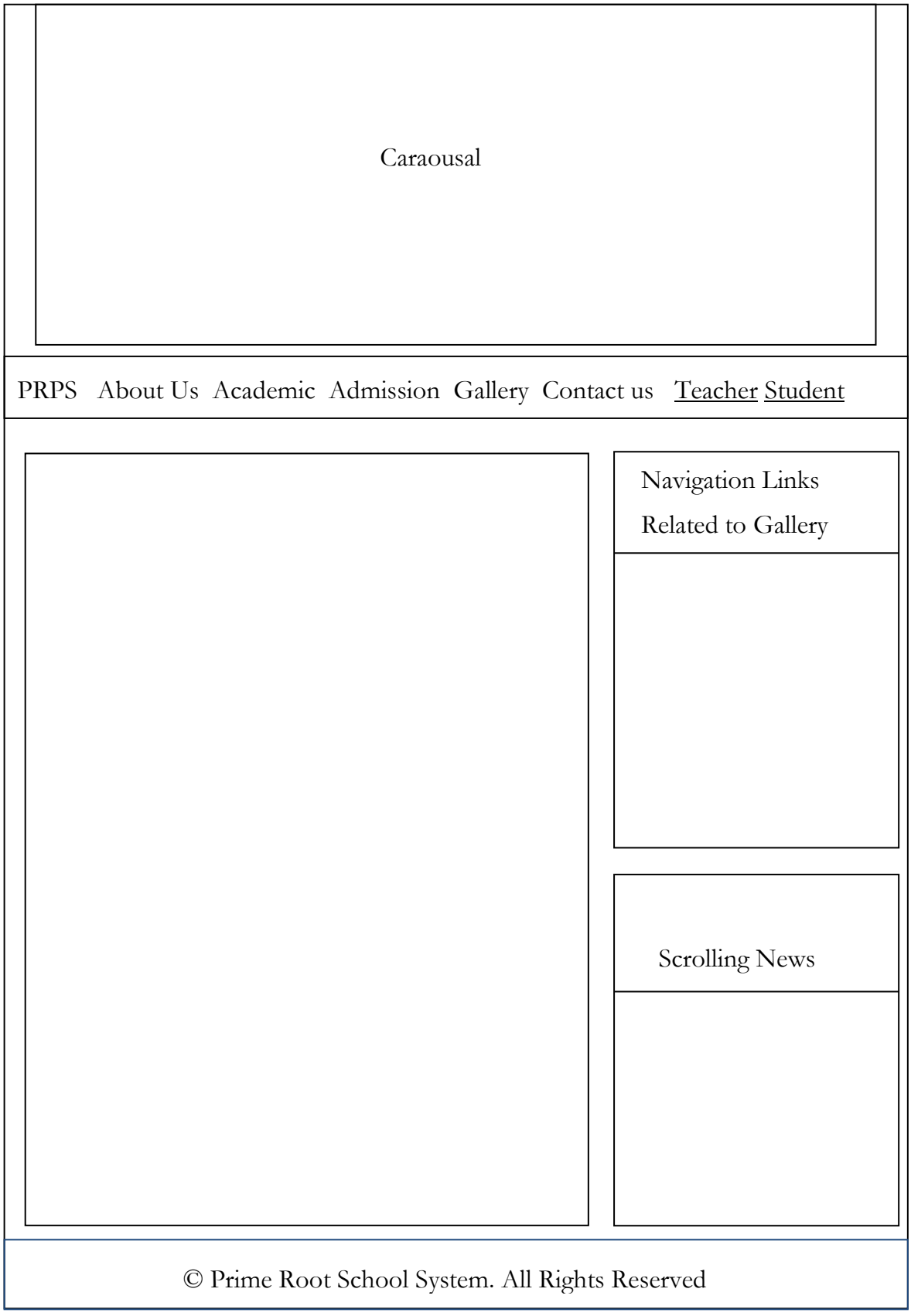
9.4 Admission



9.5 Gallery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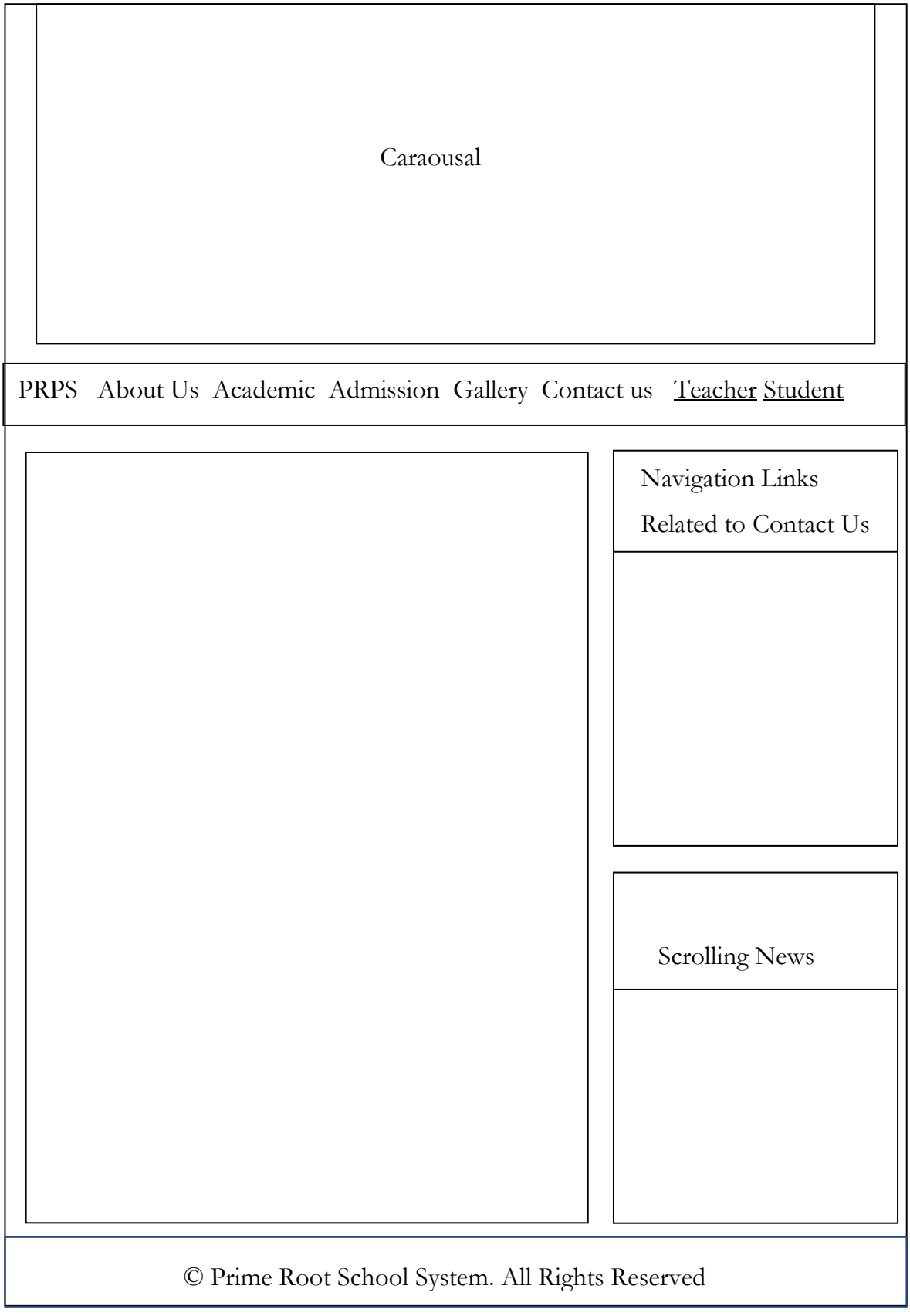
9.6 Contact Us



10 Non-functional requirement

10.1 Standard conformity

Widely accepted terms of English Language (US) are used in the application that makes it easy to use. The recommendation of W3C XHTML is used in the XHTML pages. According to the recommendation of the W3C CSS 3.0 the style sheet is implemented. When one does not find help from any other guide that specifies how to do it, then Microsoft style guides is the best option to use. Microsoft style guide is used when no other standards or guides specify how to do.

10.2 Documentation requirements

No redundancy in specifications that mean that one feature or property is defined once and only once in the documentation. Other parts of the documentation and documents refer to that one location. E.g. Database diagram can be made with the IDE, and the picture is then copied and updated to the document.

10.3 Interfaces

I have only the Web User Interface. No other interfaces to other information systems, like XML Web Services.

10.4 User Documentation requirements

No User Guides or other user documentation will be prepared this time. Later on when the application will be ready then I will do it.

10.5 Usability requirements

I will take usability test from the user to find that is application easy to use, and there are no misleading items, texts or features in the UI.

All the text and visualization on the pages state clearly what they do, and GUI components are arranged to show that items related to one action are close to each other. There are no complicated views.

10.6 Response time requirements

The user interface and database operations have to be fairly fast so that the delays perceived by the user are no longer than 1 second normally and 5 seconds after user was informed about possible wait.

10.7 Software Engineering requirements

Source code has to be easy to read, understand and modify afterwards. Variable and method naming has to be such that it's easy to see the meaning of each component. The GUI coding conventions document has to be followed.
XML documentation feature has to be used for all classes and also for methods that are not easy to understand without that comment.
Software Engineering is conducted abiding by the Conventions used in the HAAGA-HELIA University of Applied Sciences, the Bite curriculum and on the Bite courses.

10.8 Localization and globalization

Localization and Globalization aspects can be ignored in this first version.

10.9 Safety requirements

There are no safety requirements are required.

10.10 Database requirements

Single-user database environment
No locking or transaction management needed yet.

Foreign key policy

Foreign key policy is restrictive. No mother row can be deleted if child rows referring to it exist. (DNA= ON DELETE NO ACTION)

Database performance

Database operations have to be so fast that the general response time requirements can be fulfilled.

10.11 Installation

No installation due to firewall problems. Application will be tested in the development environment only.