

Roller Coaster Tycoon

Project report submitted in fulfillment of the requirement for the degree of Bachelor of
Technology

In

Computer Science and Engineering

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CERTIFICATE

Candidate's Declaration

This is to certify that the work which is being presented in the report entitled “**Roller Coaster Tycoon**” in partial fulfillment for the requirements for the award of the degree of **Bachelor of Technology** in Computer Science and Engineering/Information Technology submitted in the department of **Computer Science Engineering and Information Technology**, Jaypee University Of Information Technology Waknaghat is an authentic record of our own work carried out in the period of 19th April, 2017 to 25th May, 2017 under the supervision of **Mr. SumanPalle** (Senior Member in the department of Education, Training and Assessment at Mysore Development Centre, Infosys Technologies Ltd, Karnataka).

The matter enclosed in the report has not been submitted for the award of any other degree or diploma.

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This is to certify that the above statement made by the candidate is true to the best of my knowledge.

Mr. SumanPalle

Senior Member,

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Dated: 25th May,2017.

ACKNOWLEDGEMENT

We owe our profound gratitude to our project supervisor **Mr. SumanPalle**, who took keen interest in our project and guided me all through the development phase under the project “**Roller Coaster Tycoon**”, till the completion of my project by providing all the necessary information for the project. This thoroughly helped us in carrying out fruitful research and sound technologies. We are really thankful to him for all the support rendered.

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ABSTRACT

In this project, we are required to make a theme park from scratch symbolizing MVC (Model View Controller) application. This is used for separation of logic from the user interface.

This is achieved by separating the 3 parts of the application that is the model, the view and the controller. It can also be called as a separation design.

Since web is the eternal platform for communication and recreation and business on web is ever-growing, web applications can serve a huge business requirement to be fulfilled.

We here, have tried to construct a web-based gaming content through which a user can communicate with the system as effortlessly as ever and can have a gala time.

Since games are known for their excellent user interface and graphics, we have tried to keep it simple yet admirable at the same time.

Technologies used are Eclipse Luna, Html Canvas 5, Java-script Cookies, and Apache Tomcat server 7.0, Adobe Photoshop CC.

We have aimed to create a gaming experience worth the player's time and understanding the future requirements of the person, if any.

INTRODUCTION

These days, web is a definitive stage for playing out a wide range of tasks from shopping, to playing recreations. Unless this was run over, the world could barely associate. Today, whatever we wish to accomplish should be possible through web. Having known this reality, we at Infosys were given making an electronic diversion out of the learning results of our preparation there.

Website composition includes various aptitudes and teaches in the generation and support of sites. The diverse zones of website architecture incorporate web visual communication, interface configuration, composing including institutionalized code and restrictive programming; client encounter outline and site design improvement.

Program amusements can be run utilizing standard web innovations or program modules. The formation of such diversions ordinarily includes utilization of standard web advances as a frontend and different advances to give a backend. Program amusements incorporate all computer game kinds and can be single-player or multiplayer. Program diversions are additionally compact and can be played on various distinctive gadgets, web programs, and working frameworks.

Program recreations come in numerous classes and subjects that interest to both standard and easygoing players.

Program recreations don't require any customer programming to be introduced separated from a web program or program. At times a diversion might be free, yet charge for additional in-amusement highlights. Multiplayer program amusements have an extra

concentrate on social association, either between a few players or on a gigantic scale. Because of the openness of program amusements, they are regularly played in more successive, shorter sessions contrasted with conventional PC diversions.

Since program recreations run segregated from equipment in a web program, they can keep running on a wide range of working frameworks without being ported to every stage.

1.1. Problem Statement

Roller Coaster Tycoon is a progression of computer games that recreate event congregation administration. Each diversion in the arrangement challenges players with open-finished event congregation administration and improvement, and enabling players to develop and alter their own one of a kind thrill rides.

It was produced by Scottish fashioner and software engineer Chris Sawyer, craftsman Simon Encourage and writer AllisterBrimble, with help from different driving figures from this present reality crazy ride and amusement stop industry. It was distributed by Hasbro Intelligent (which was sold to Infogrames, and is presently known as Atari). The diversion was a sleeper hit.

We were to make a full paced gaming background for the clients to have the capacity to work at the electronic frameworks and do the undertakings of a gamer proficiently.

From an excellent UI to the expert gaming prerequisites, everything is paced in one bundle and to comprehend the last parts, this venture has been of awesome help and guided us in learning different new ideas and wordings.

1.2. Objectives

The principle goal of the venture is to have the capacity to study and actualize center java ideas and to have the capacity to extemporize front end segments to their fullest. The whole indicate is come down the way that gaming industry today has humungous impact on the android and additionally on the macintosh stage.

In this way, having the capacity to outline a high-class gaming knowledge clears route for having the capacity to make a lot of positive reaction.

The thought process is to wind up plainly totally mindful and acquainted with the innovation utilized for the execution of the venture and make its best use for our venture culmination. Along these lines we go for drawing out outcomes which could be utilized as a part of future progressively extends by methods for aggregate learning, critical thinking and shared research work through appropriate coordination and participation.

1.3. Methodology

- **Gaming Scenario:** This step involves the development of a suitable combination of rides and visitor's placements that best serves our purpose. The combination can be then tested on various parameters such speed of the ride construction, ride deployment etc.
- **Application Design:** We then had to create a web based user interface for the game. The application enables the player to be able to perform all the gaming functionalities and understand the concepts and purpose of the game by going through the user requirements and currency management desk.
- **Integration and Unit Tested Modules:** In this step we add the various gaming features in our application to ensure user authentication and use of different gaming functionalities on the server.

- **Deployment on web:** Deployment is awaited until the application is approved by the admins.

LITERATURE SURVEY

Execution reliant on customer setup: as opposed to a comfort, for example, a Xbox 360, or a mobile phone, there are a considerable measure of designs of PCs, every one with its own execution. You may find that your diversion runs well on your exceptional engineer machine, yet won't keep running too on your mom's Pentium Celeron. This is run of the mill of PC advancement, and you ought to ensure when creating web amusements that yours does not hoard excessively assets.

Inventiveness is the bread and margarine of pretending recreations. They have a specific quality that enables you to rise above run of the mill diversion associations. You have genuine opportunity and the capacity to propel the story how you see fit. There are principles for each diversion, however they are just the skeleton to whatever story you and your group need to make.

Narrating is a standout amongst the most intense approaches to enact our brains, and pretending recreations do this unbelievably well. When we recount stories—or experience them—our brains need to process dialect, the circumstances and end results of occasions, and furthermore relate it to our own prior encounters. While you're assuming a pretending amusement, your mind is terminating on all barrels.

Glimmer is impeccably suited for program diversion improvement, be that as it may, attractive productivity is just guaranteed on PCs. This innovation doesn't offer anything past what is as of now conceivable with HTML5, in addition to it requires having its module introduced in the program.

In spite of steady improvement and advancement, Blaze is probably not going to remain in post position on a program and portable amusement creation level. It will more probable be one of those advancements which at times shows up in WWW destinations.

2.1. HTML 5 and Future of Web Based Games

Programs are a ton more quick witted now and they are just going to keep on getting more brilliant. As opposed to depending upon modules to show intuitive and graphically extreme pages current programs can do everything without anyone else's input. Using the W3C, the detail for HTML5, program creators are including a wide range of usefulness into their items that web engineers can now use to make graphically serious and intuitive sites. This has extraordinary ramifications for internet diversion planners. Before long (ideally) creators will at no time in the future be compelled to browse a chosen few exclusive innovations that are costly, as well as commit their end clients to download, introduce, and consistently refresh the individual modules.

Customarily the part of HTML has been utilized fundamentally to characterize and design the content on site pages. Throughout the years, be that as it may, its part has gradually advanced to be more intuitive. The new HTML5 spec advances this development by including definitions for a few extra components gone for intuitiveness, media, and designs.

Consolidate these new HTML5 components with the speedier and upgraded JavaScript motors accessible in present day programs and you now have an arrangement of apparatuses superbly suited for internet diversion advancement.

Not exclusively are the HTML5 advances appropriate for making program based recreations, they offer a few favorable circumstances over restrictive alternatives. HTML5 is an open innovation. It doesn't cost anything and actually just requires a straightforward word processor to code in. Keep in mind the energy of free. Streak and other exclusive advancements all cost the engineer. While this absolutely isn't the main component that an amusement designer would think of it as, unquestionably plays a part, and for the little time independent engineer it may be a major element. Similarity is another tremendous favorable position HTML5 has. HTML is the most reduced shared element for all online gadgets. By utilizing HTML5 you can focus on a more extensive exhibit of gadgets and devices without having to explicitly port your diversion to

each extraordinary stage. Another regularly overlooked favorable position is convenience. For the in fact keen, downloading, introducing, and refreshing modules is just a minor bother. In any case, for less in fact sharp clients this can be a significant obstacle and just may dismiss clients by and large.

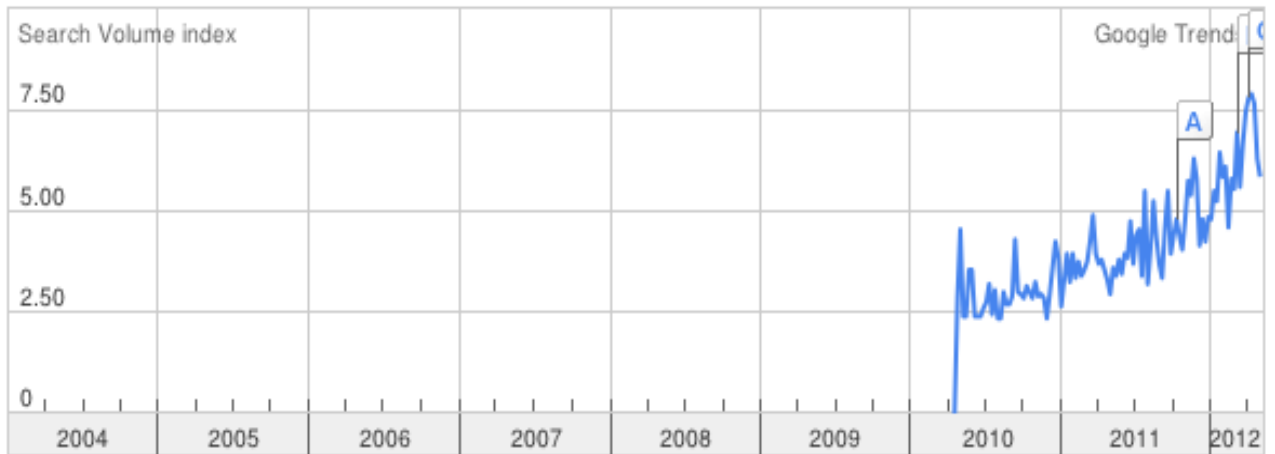
flash games

1.00



html5 games

1.00



FLASH Vs. HTML 5

Above you will discover a few diagrams from Google Patterns for the hunt term "streak recreations" and after that additionally the expression "html5 diversions". It is anything but difficult to see that scans for "blaze amusements" have been in unflinching decrease for in the course of recent years while looks for HTML5 diversions have seen some really noteworthy development in the previous 3 years. While this truly doesn't demonstrate anything, it is a

fascinating metric to help gage the ubiquity patterns of the two unique advances. Note that these graphs demonstrate just relative hunt volume and not general volume. Per the Google Adwords apparatus, the month to month worldwide look volume for "blaze recreations" is 11,100,000 contrasted with a measly 49,500 for "html5 diversions".

2.2. Future of online games

Will HTML5 be the finish of module based amusements? On the off chance that it will be, it is really sheltered to state that it won't be going on at any point in the near future. It is assessed that the HTML5 spec won't be completely actualized until 2022. In spite of this long time allotment, program producers are now dashing to incorporate all the HTML5 usefulness that they can. Amusement designers have exploited this and made various quality recreations that effectively contend with their glimmer partners. Given the flow seek patterns and the few points of interest HTML5 has over Blaze, the future for HTML5 amusements looks brilliant.

While it is not sure if HTML5 will in the end win out to end up plainly the gaming innovation of decision, one thing is for sure: the adoration for online easygoing gaming has caught the enthusiasm of millions and the length of that intrigue exists engineers will keep on creating fun and energizing diversions.

Devices that are introduced in this article are just little piece of the wide assortment accessible on the web. An enormous database of prepared to-go arrangements, libraries, motors and structures which can be utilized for HTML5 recreations advancement are anything but difficult to discover. We trust that HTML5 will turn into a solid stage and its functionalities will enable us to make truly energizing, imaginative preparations which will have the capacity to be played specifically by means of the program.

2.3.Pros & Cons of HTML5

Benefits:

- Works directly in browser without any additional plugins;
- One code base allows running games on any device that supports HTML5;
- Allows creating games for both mobile devices and PCs;
- Vast, dynamically expanding society;
- Game doesn't have to be installed on device;
- Provides possibility to create multiplayer games using, for example, Web Sockets technology for client-server communication.

Drawbacks:

- Lack or only partial Web GL support on mobile devices;
- Still incomplete specification;
- Low efficiency on mobile devices if optimization not carried out.

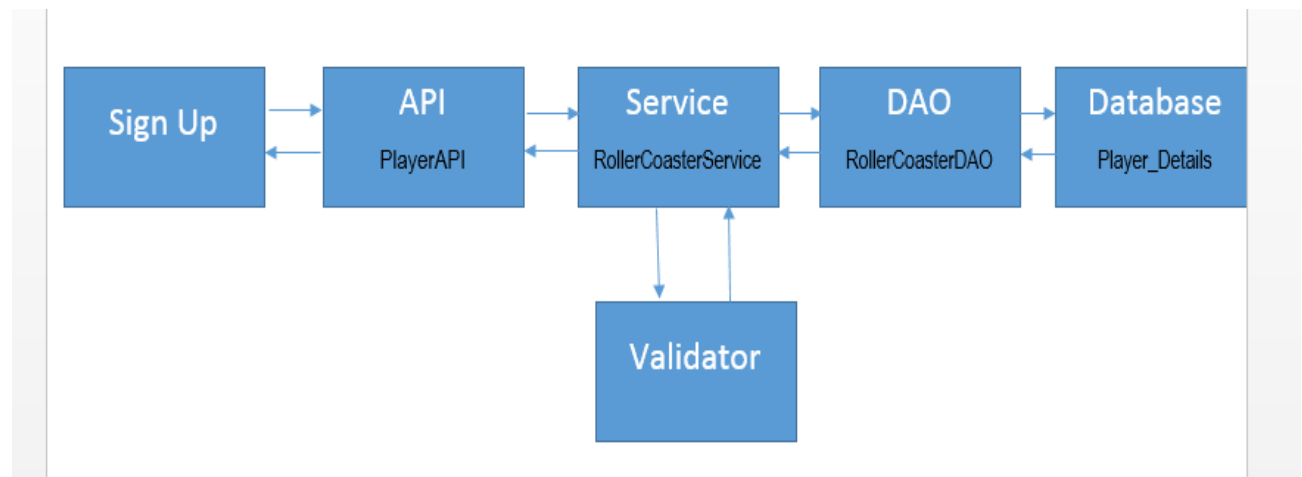
SYSTEM DEVELOPMENT

3.1. Software Requirements

- Eclipse Luna
- HTML 5 Canvas
- Adobe Photoshop CC
- Piskel
- Apache Tomcat server 7.0

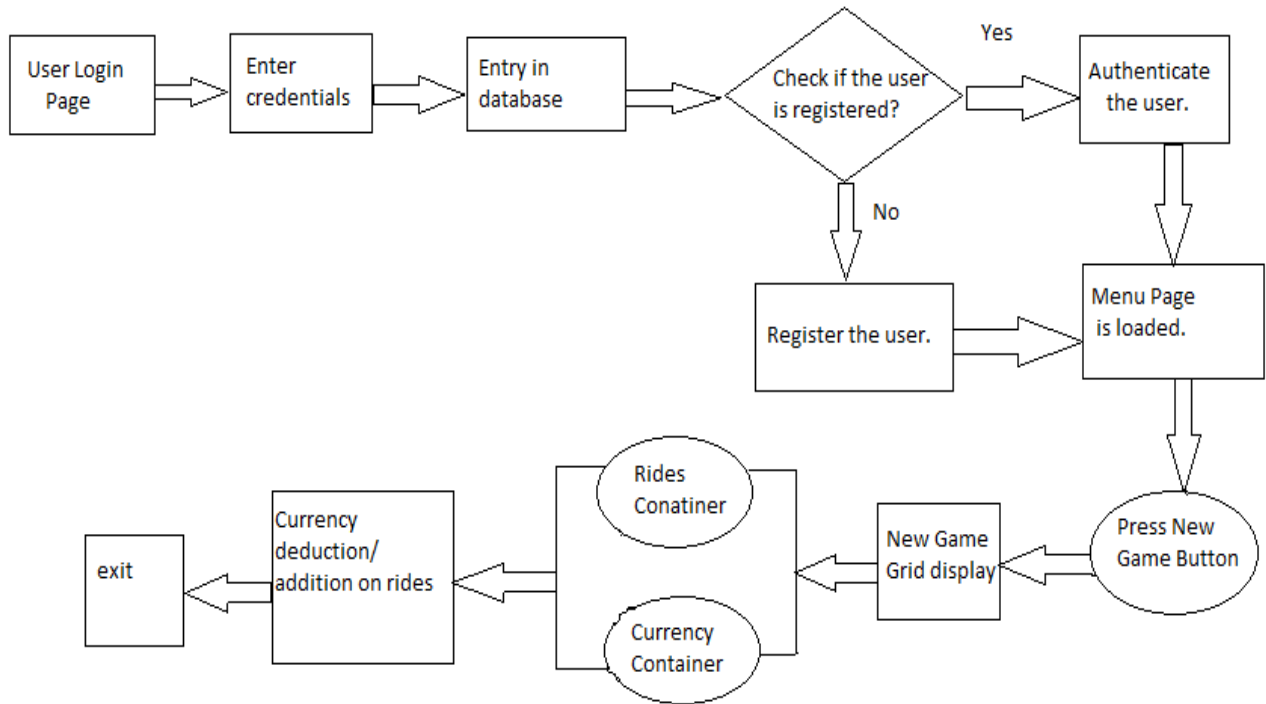
3.2. Hardware Requirements

- **System Requirements:**
 - CPU: 1.7 GHz Processor and above
 - RAM: 1 GB or above
 - OS: Windows 8 and above

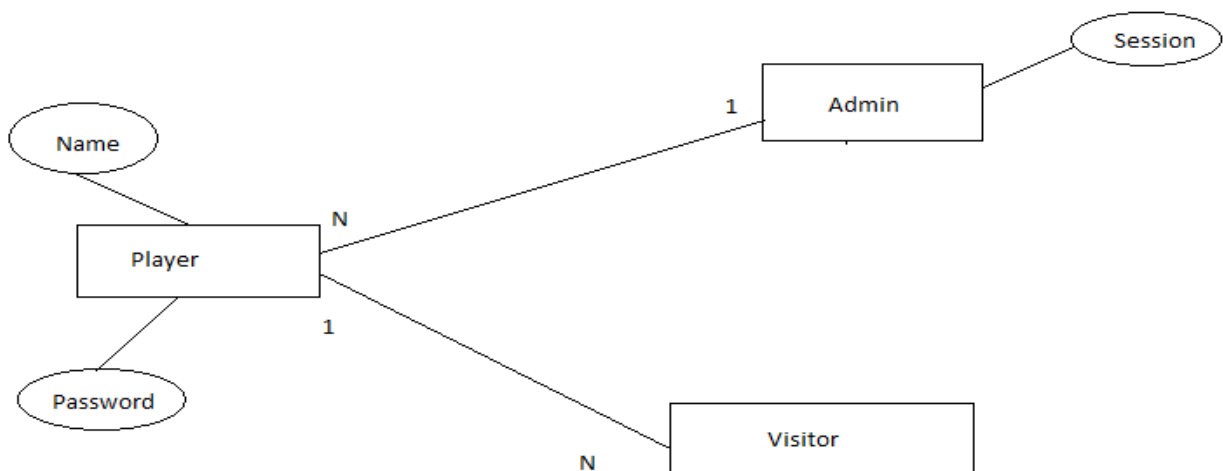


Object Oriented Design

3.3. System Design



E-R Diagram:-



3.4. Design Summary

This system design briefly illustrates the functionality of the virtual amusement theme park that we have tried to create.

The game involves options for providing currency functions and features of utmost relevance and alignment with the topic.

PERFORMANCE ANALYSIS

4.1. Testing Analysis

Testing is the stage of implementation that is aimed at ensuring that the system works accurately and efficiently before the live operation commences. Testing is vital to the success of the system. System testing makes the logical assumption that if all the parts of the system are correct, then the goal will be successfully achieved. A series of testing are done for the proposed system before the system is ready for the user acceptance testing.

For Login Form:

1. To check whether username and password are not null fields.
2. To check whether the password matches with the database password saved on signup.
3. To check whether the page redirects to the menupage when logging in as Player.
4. To check whether error message "username does not exist" is displayed in red color while logging in with wrong username.
5. To check whether error message "password is incorrect" is displayed in red color while logging in with wrong password.

For Sign up Form:

1. To check whether signup form fields are rendered.
2. To check on entering different passwords "Passwords do not match" error is shown.
3. To check whether Email id accepted is of the form "characters@characters.domain".
4. To check whether password field matches with confirm password field.
5. Check whether the username entered hasn't been taken already
6. To check whether name field is not accepting numbers.

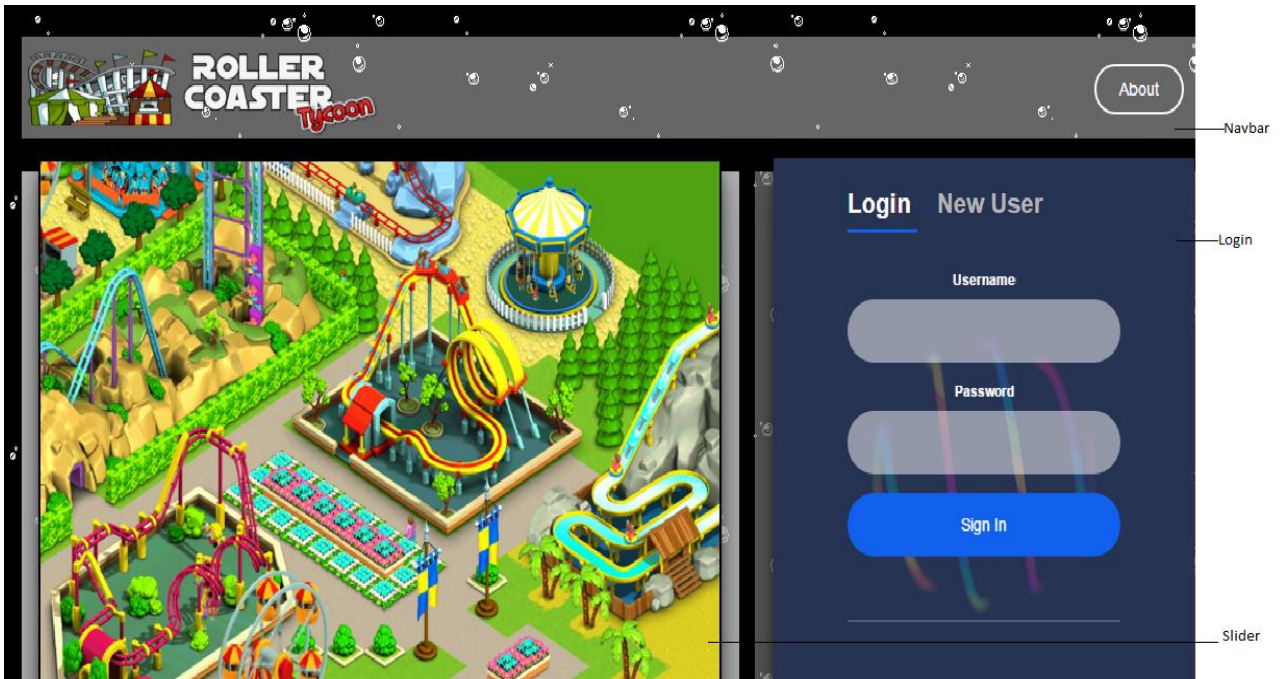
For Menu Page:

1. To check whether the respective tabs have respective functionalities.
2. Check whether the animation behind each tab disappears on hover.
3. Once the player quits the game, on clicking the back button menu page should not appear.
4. Check whether the name of the player appears in the animation below.

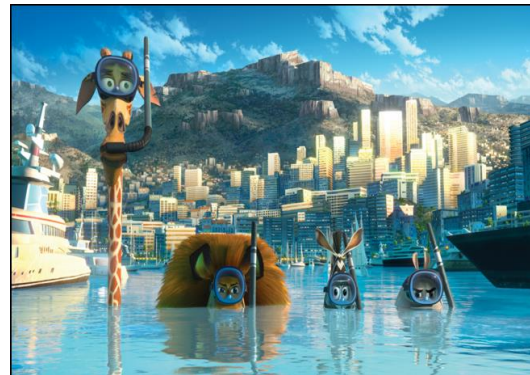
For About Pop Up:

1. Page should appear as a single page application.
2. The description of the game should be displayed.
3. Opening the window, background page should be blackened.
4. Closing the window, background page should return as before.

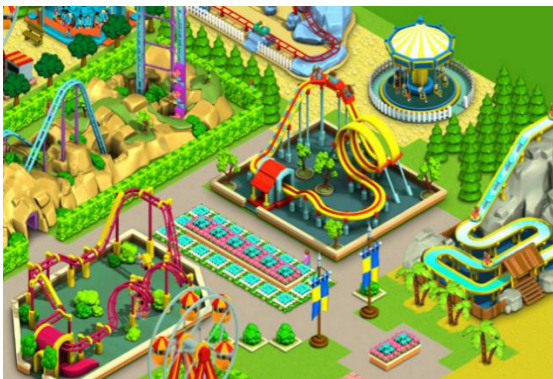
4.2. Dynamic Page Views



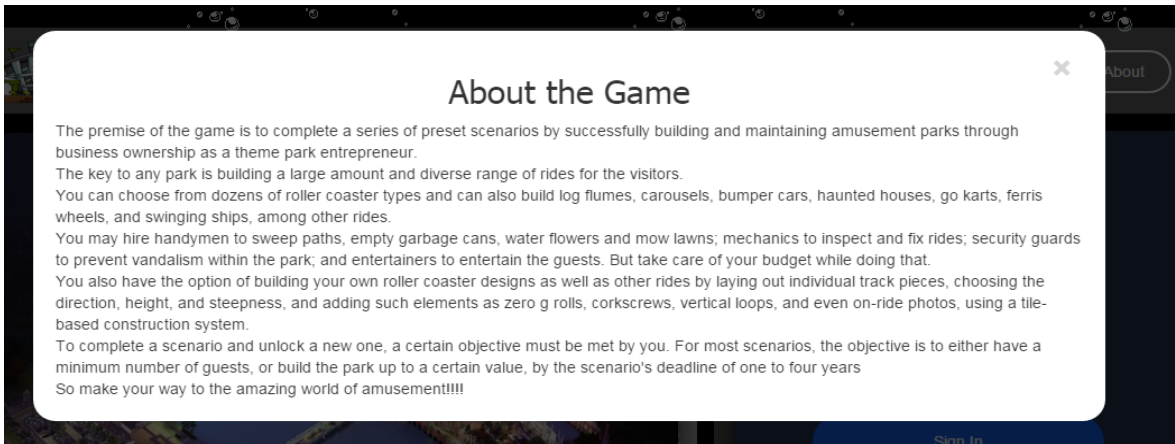
Home Page Layout



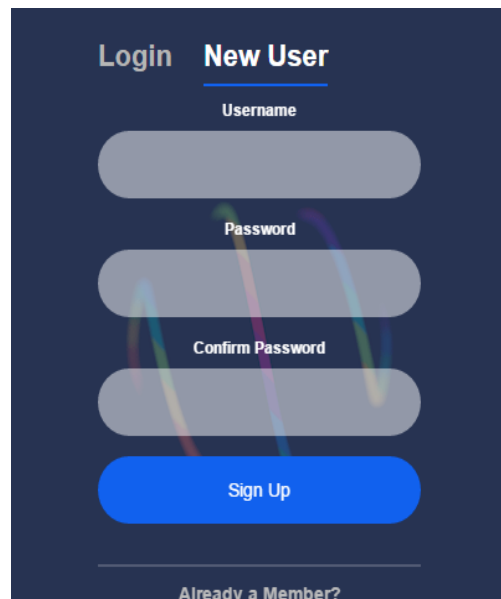
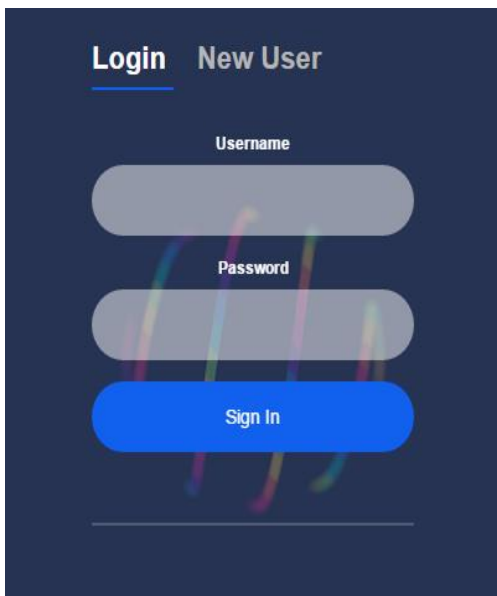
Log In Slider 1-2



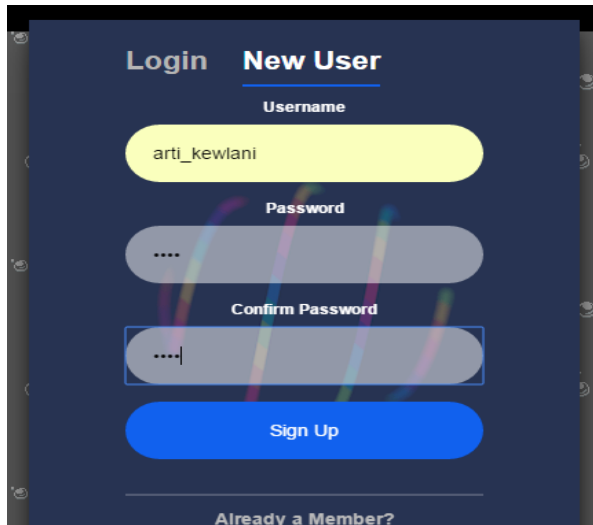
Log In Slider 3-4



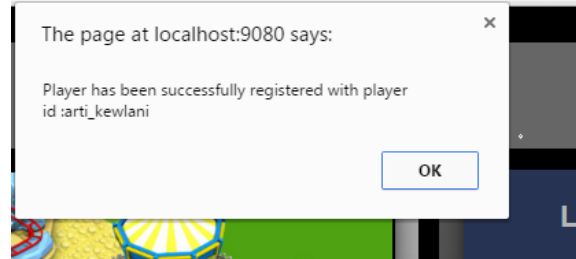
“ABOUT” Button- On click pop-up



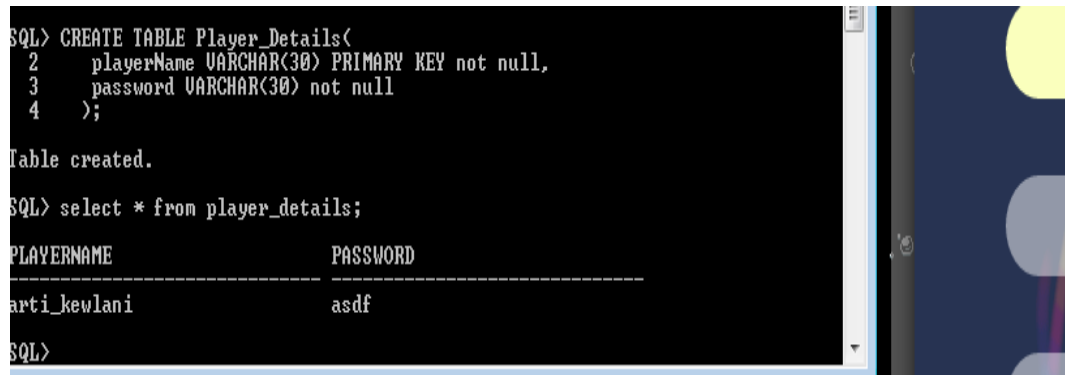
Login/New User Form (wrapped together)



Registration of a new Player.



Pop up on successful registration



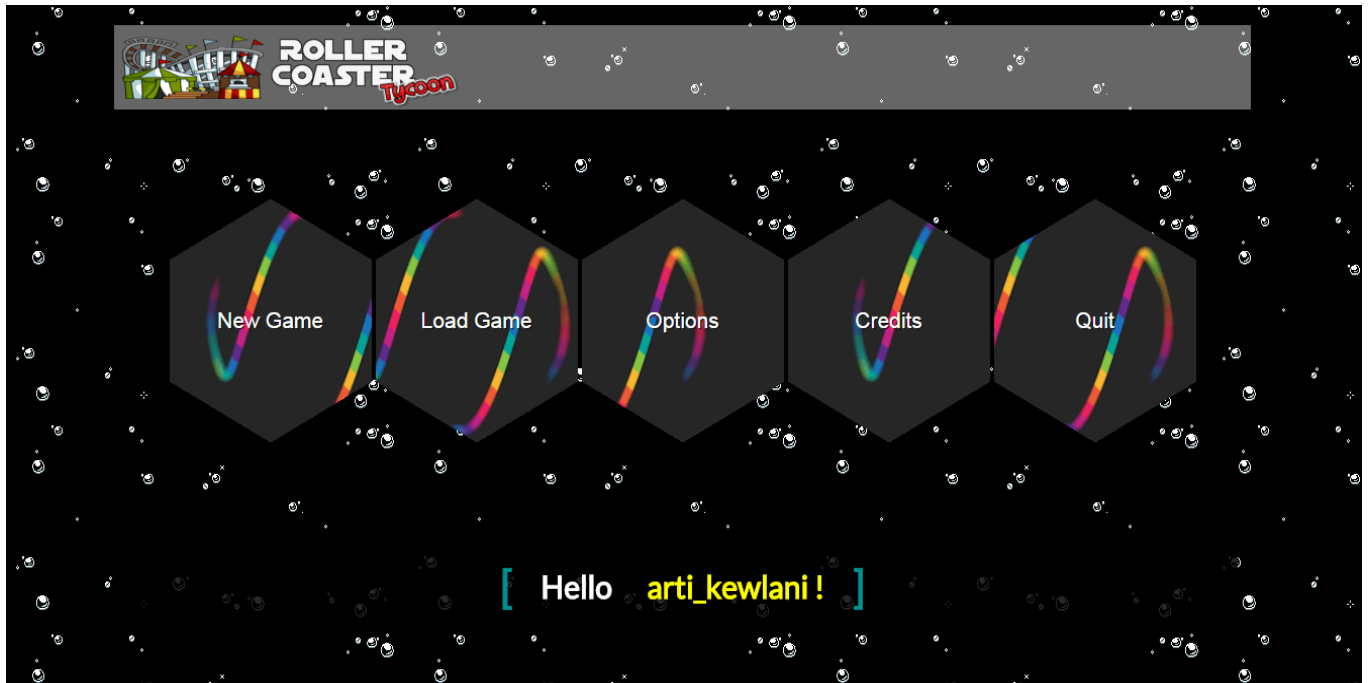
Database Connectivity with front-end.

```
Drop table Themes_Available ;
Drop table Player_Details ;

CREATE TABLE Themes_Available(
  Theme CHAR PRIMARY KEY,
  ThemeDescription VARCHAR(20)
);

CREATE TABLE Player_Details(
  playerName VARCHAR(30) PRIMARY KEY not null,
  password VARCHAR(30) not null
);
```

Table Scripts



Menu Page-User Name Slider



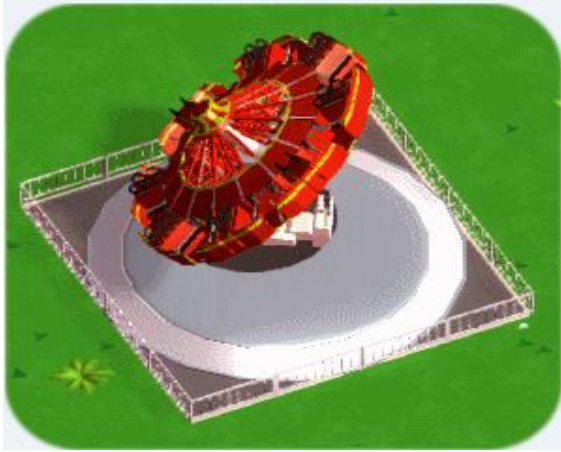
Loading Page Layout



Game Grid Layout – New Game



Ride Placement on the destination + Currency Deduction



Ride-1 Example.



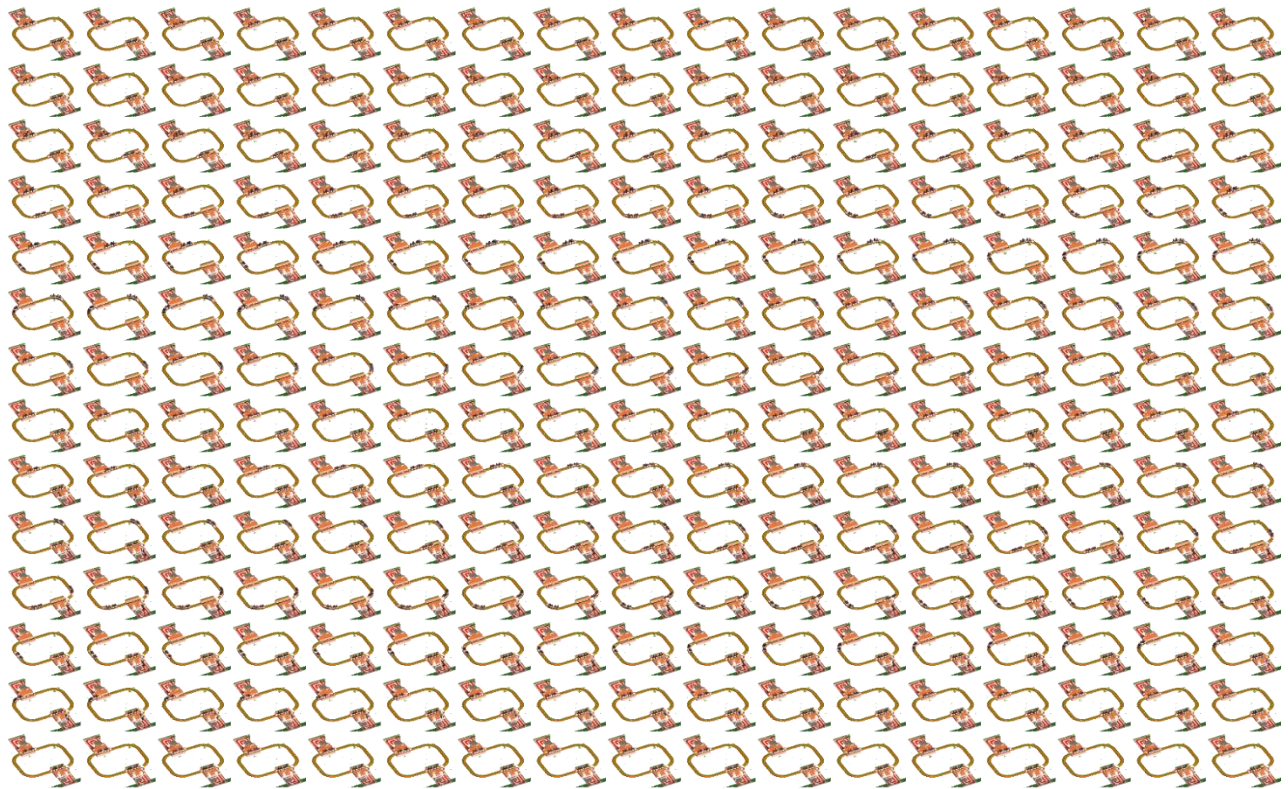
RC (Roller Coaster) Logo



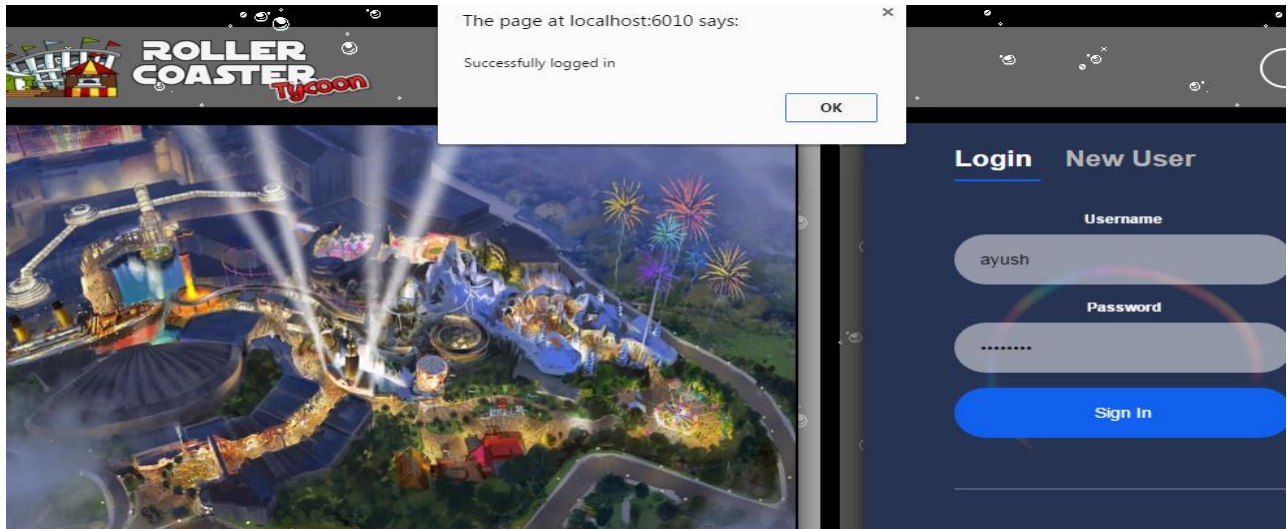
Sprite sheet of Ride-1



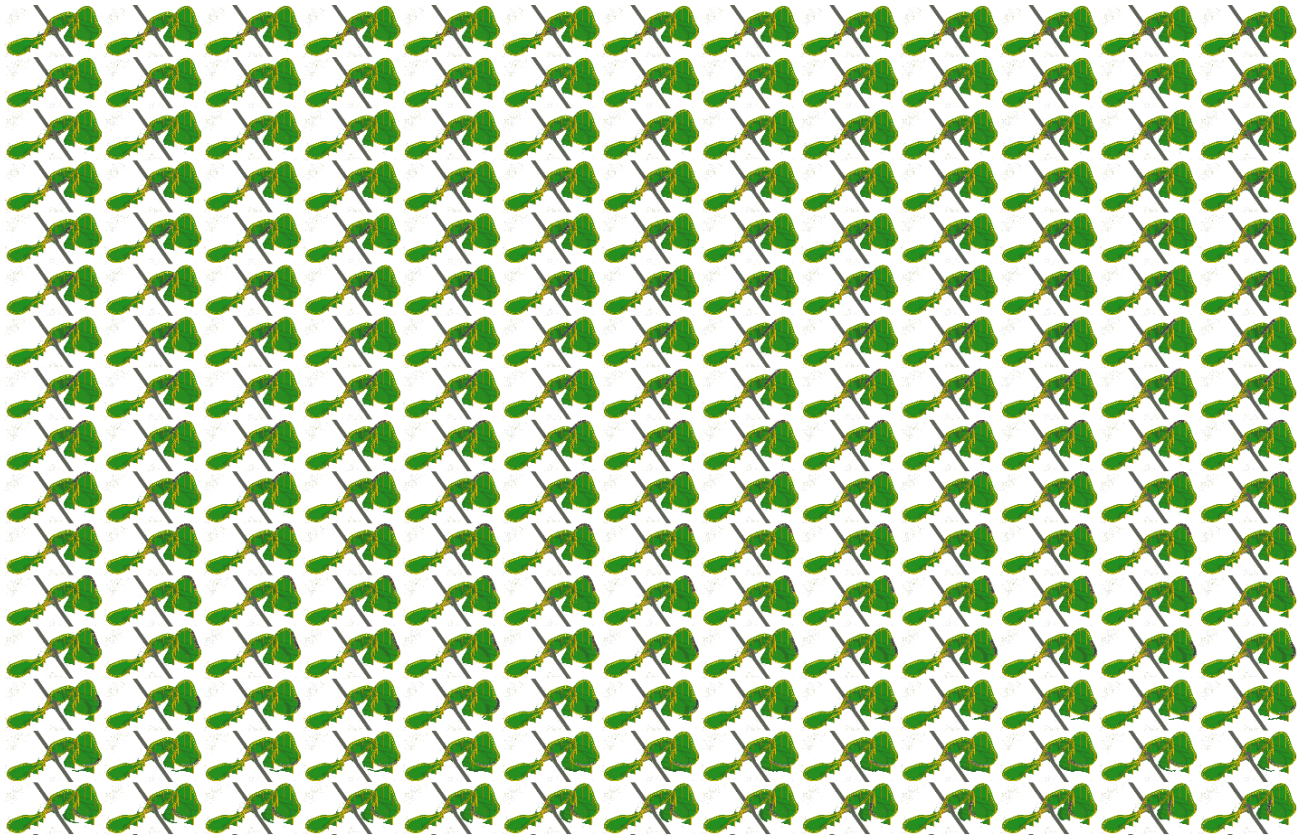
Game Page after ride construction



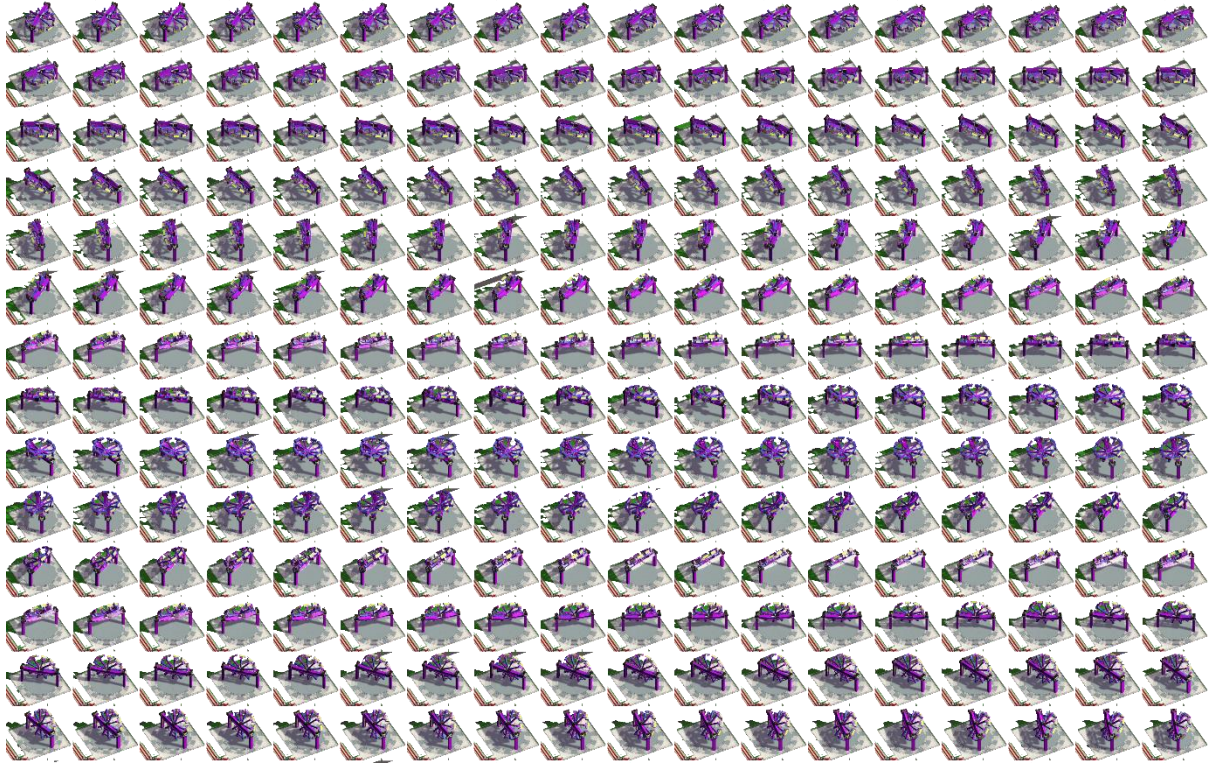
Sprite sheet of Ride-2



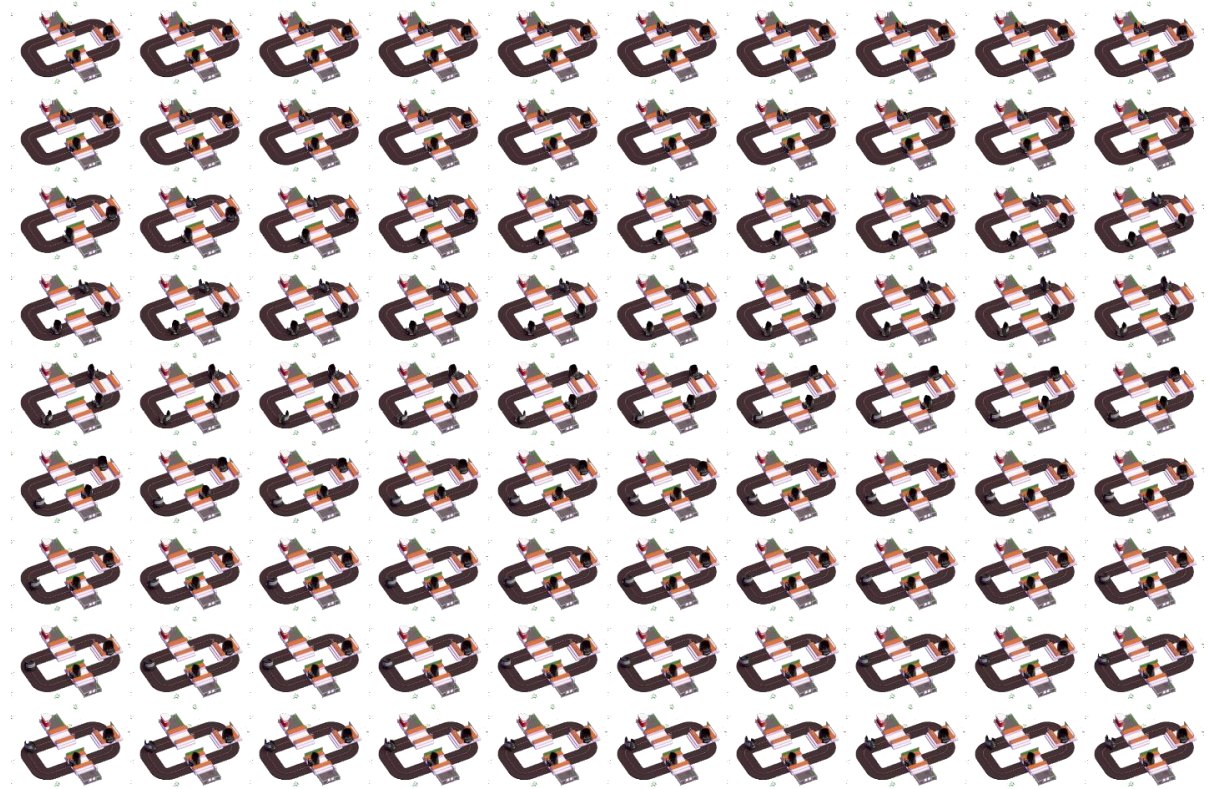
Successful Login



Sprite sheet of Ride-3



Sprite sheet of Ride-4

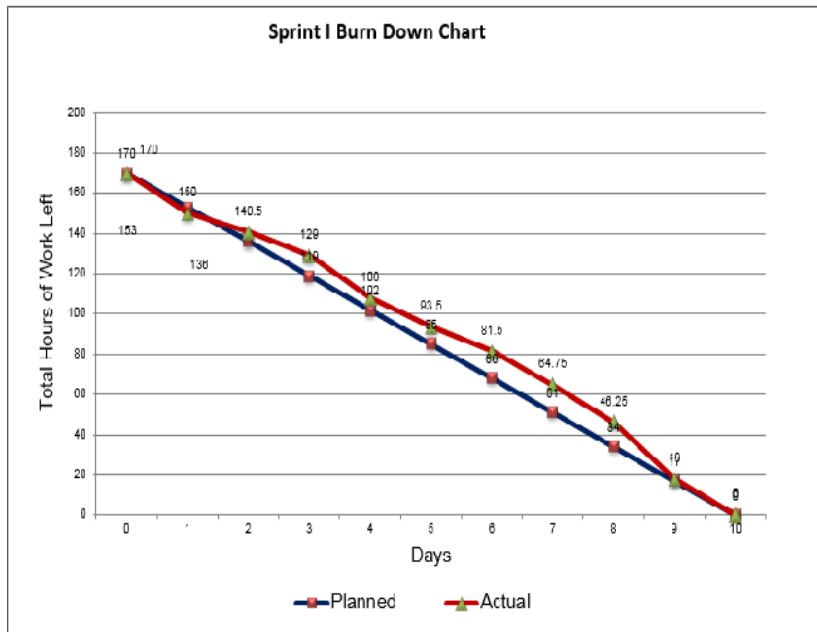


Sprite sheet of Ride-5

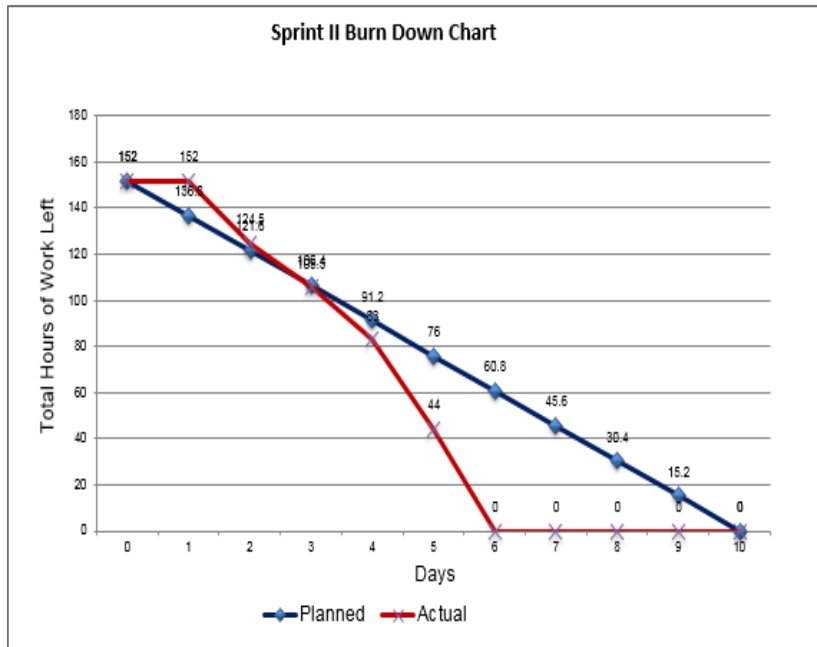
4.3. Sprint Wise Burn Down Charts:

Burn down charts are supposed to depict the progress of the project during sprint. Each project is divided into “sprints” which represents the duration that is supposed to produce a deliverable.

To be able to view the project progress during sprints, gives an accurate estimate of how the project is going and if the pace is required to be adjusted.



Sprint 1 Progress
COMPLETED



Sprint 2 Progress
COMPLETED

Conclusion

It is concluded that the application/website works well and satisfies the users. The application is tested very well and errors are properly debugged as well as managed. The application works according to the restrictions provided in their respective system. The application is simultaneously accessed from more than one system. Further enhancements can be made to the application so that the application becomes more user interactive. Efforts are done to increase the user experience from time to time. Several modifications took under each sprint just to increase the user experience.

The project has covered almost all the requirements. Further requirements and improvements can easily be done since Agile Software Development Model has been followed which allows modifications and enhancements from time to time. Changing the existing modules as well as adding new modules can append improvements. Further enhancements that can be made to the application are:

1. UI enhancement by adding more animations.
2. A user should be able to expand his/her territory according to the need.
3. User should be able to change password whenever he wants.
4. Payment portal can be provided to the user in case he wants to buy coins or rides.
5. Sign up and login credentials can be stored in database in encrypted format.
6. User can make different parks on different grounds.
7. Money collected from all the parks could be collectively used on any park.
8. Dynamic collection of coins in the treasury.

4.1. Future Scope

On the basis of the analysis of performance of our application, it can be easily scaled up to large extent. By adding a few more resources it can be made online on the internet and thus can used worldwide.

This futuristic park has plenty of space for new rides on its endless landscape. User Interface enhancements can be easily made by modifying the HTML & CSS files. The game can be expanded to different territories and landscapes by increasing the fields in the game.

Dynamic coin collection could be implemented. Different types of currency can be provided to the player in the further stages of the game. Rides construction and upgradation processes can be shown along with level up of the player.

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