Ninja Typers
Touch Typing Application

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Marvin Farrell

Vision

Introduction
I plan on developing a web application that will teach students how to touch type. The application will be divided into two parts. The first will be for the teacher who is overseeing the students of the application as they are typing. The teacher will select and distribute the content for the students to follow as they type and will also be able to monitor how well a student is progressing through the course. The second part of the application is the side of the student who is learning how to type. The student can select a lesson and from here the student start typing the current lesson. Once finished the students stats for the current lesson is uploaded to a database. All this data relating to each individual student will be stored on the cloud.

Background
The system that is in place currently at NinjaTypers[1] is a non automated system. Each student is given an iPad set up with a keyboard. A word processing application called “Pages” is used for the typing. The content for each student is typed by the Administrator on the top of the page. Each student goes at their own pace. NinjaTypers class allocates 45 minutes for typing activity and 15 for recreational use of iPad applications. As the classes go on the sentences which they have to type get slightly more difficult by using words that incorporate more characters/keys and require the use of other fingers. No error checking is done with the current system, at the end of each lesson the Administrator goes around to each student to see if there are any mistakes and where they have occurred. There is a grading structure in place currently with 11 different certificates. Each certificate represents a different stage in the course.

[1] "Ninja Typers, Lets get Typing!." 2012. 1 Dec. 2013 <http://www.ninjatypers.com/>

Grading Structure

1. White Cert: WhiteKeys = ASDFJKL;
2. Yellow: YellowKeys= WhiteKeys + GHEI
3. Orange Cert: OrangeKeys= YellowKeys + TY
4. Green Cert: GreenKeys= OrangeKeys+ RU
5. Blue Cert: BlueKeys= GreenKeys + WO
6. Purple Cert: PurpleKeys= BlueKeys + PQ
7. Silver: SilverKeys= PurpleKeys + NMB
8. Brown Done: BrownKeys= SilverKeys + CV
9. Navy Done: NavyKeys= BrownKeys + ZX
10. Black: BlackKeys= NavyKeys + ,.
11. Gold Belt:GoldKeys= BlackKeys + 2 SHIFT KEYS

Business Case

Technology is moving forward at a very high rate and this is penetrating nearly every sector in the country. An article in the Irish Independent stated that more than 20,000 students in over 100 of the country's 730 secondary schools are being assigned tablet devices for digital learning.[2] The number of schools making tablets mandatory is on the rise, in England many schools are coming up with payment schemes to help families pay for these high costing devices[3]. So with these technology driven advancements making their way into the educational system it is essential that the students equip themselves with the skills to be able to use these tablets. One of the main skills that a student should develop would be touch typing. It will be a necessity to have this kind of skill as a child grows up in a time where computers are everywhere. There is a vast range of potential clients for the Ninja Typers Application. After meeting with Keith Lennon (Owner and creator of Ninja Typers) some of the main clients are as follows:

- Schools/Educational System

[2] "Parents being forced to fork out €500 for school iPads - Independent.ie." 2013. 14 Nov. 2013 <http://www.independent.ie/lifestyle/education/parents-being-forced-to-fork-out-500-for-school-ipads-29546495.html>

[3] "Schools ask parents to stump up £200 for iPads | Education | The ..." 2013. 14 Nov. 2013 <http://www.theguardian.com/education/2013/jul/28/ipad-tablet-computer-school-parents>

- Parents
- Children with learning disorders(ADHD, Dyslexia, Aspergers)

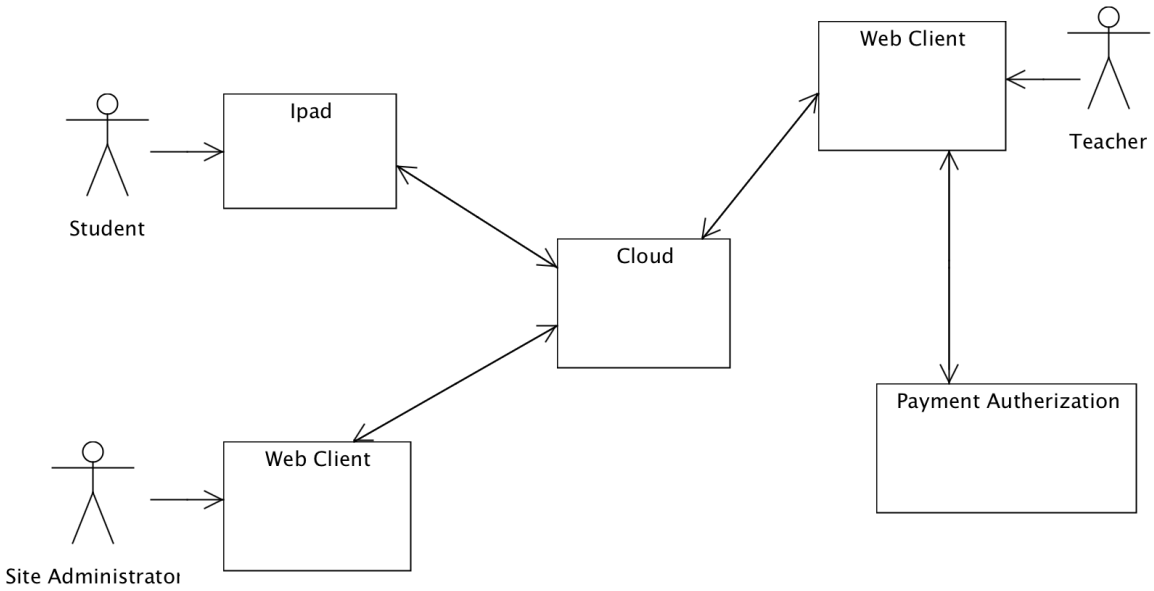
Summary of Software Features

- Track Progress: The student using the application may be able to track their progress whilst using the application by viewing statistical information on their account.
- Typing: The student will be able to take lessons in multiple difficulty rating. The lessons consist of typing activities.
- Monitor Students: The teacher will be able to monitor the accounts of the students enrolled on their course.
- Make Payments: The teacher will be able to make payments for the student/students that they are overseeing.

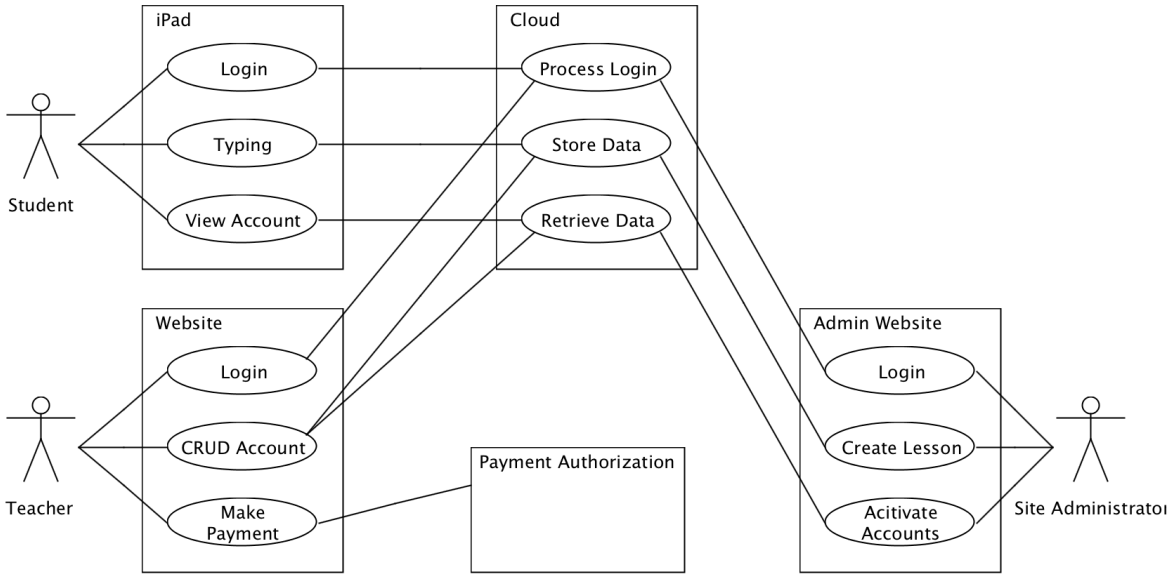
Main Risk Summary

- Cloud: data retrieval/submission
    - The biggest risk here is establishing a connection to the database. A problem may arise that would prevent the student/teacher from accessing data stored on the cloud.
- Hardware issues with iPad
    - There may be device being used when using the application.
- Networking issues
    - Inconsistent connectivity would be a big risk. If the network was down the website would not be accessible.
- Data Protection/Security
    - Risk may arise in two areas of the application with data protection and security. The first is relating to information stored on students of the application. The second is with regards to payments made through the system and credit card information.
- Website Layout.
    - The website may be displayed in a different format if used on a different web browser.

Context Diagram



Use Case Diagram



Use Cases

Login
Actors: Student, Teacher, Site Administrator, Cloud.
This use case begins when the student, teacher or site administrator attempts to login. The student, teacher or site administrator enters their details into the login page and if the login is successful are redirected to the the home page.

Typing
Actors: Student, Cloud.
This use case begins when the student starts a typing lesson. The student has to type all the keystrokes that are in the current lesson.When the typing lesson is complete, stats from the current lesson is uploaded to the cloud.

View Account
Actors: Student, Cloud.
This use case begins when a student wishes to view information regarding their own account such as name, score, number of words types, current certificate, accuracy etc. The students data is retrieved from the cloud and displayed on the page.

CRUD Account
Actors: Teacher, Cloud.
This use case begins when the teacher attempts to create, read, update or delete a student account. When the teacher carries out the selected option the database on the cloud is updated.

Make Payment
Actors: Teacher, Payment Authorization.
This use case begins when the teacher attempts to make a payment for the student\students using the application. The teacher enters the payment details and this is sent to the Payment Authorization to make the payment.

Activate Accounts
Actors: Site Administrator, Cloud.
This use case begins when the site administrator attempts to activate any unactivated teacher or student account stored on the cloud.

Create Lesson
Actors: Site Administrator, Cloud.
This use case begins when the site administrator attempts to create a new lesson for a specific grade. When the lesson is created it is stored on the cloud.

Process Login
Actors: Student, Teacher, Site Administrator, Cloud.
This use case begins when information is sent from either the student, teacher or site administrator for a login. The cloud checks this information with data stored in the database on the cloud.

Retrieve Data
Actors: Student, Teacher, Site Administrator, Cloud.
This use case begins when information is requested from either the student, teacher or site administrator for an activity. The data is retrieved from the database and sent back to the student, teacher or site administrator.

Store Data
Actors: Students, Teacher, Site Administrator, Cloud.
This use case begins when information is sent from either the student, teacher or site administrator to the cloud. The data is stored in the database on the cloud.

Detailed Use Cases

Login:
Actors: Student, Teacher, Site Administrator, Cloud.
Main Success Scenario:

1. Student, Teacher Site Administrator enters credentials into the login area.
2. Student, Teacher or Site Administrator presses enter button.
3. Cloud processes login.
4. If login is successful Student, Teacher or Site Administrator is redirected to their home page.

Typing:
Actors: Student, Cloud
Main Success Scenario:

1. Student selects the typing lesson they want to take.
2. Student selects the option to start typing.
3. Student types all keystrokes for the current lesson.
4. Upon completion the information for lesson is saved.
5. Information is sent to the cloud.
6. The cloud stores the data.
7. Student account is updated.

8. The Student can pick the option to return to their home page, retake the lesson or proceed to the next lesson.

View Account:
Actors: Student, Cloud
Main Success Scenario:

1. Student selects the option to view their account information.
2. The Cloud retrieves data.
3. Information is displayed on the Student page.

CRUD Account:
Actors: Cloud, Teacher
Main Success Scenario:

1. Teacher goes to Student accounts.
2. Cloud retrieves data.
3. All students on course accounts are displayed.
4. If the Teacher selects the option to create account account.
    a. Teacher enters student information in new accounts fields.
    b. Teacher presses create button.
    c. Information is sent to the cloud.
    d. Cloud stores the information.
    e. Account awaits activation.
5. If the Teacher selects the option to update account.
    a. Teacher selects the account to update.
    b. Teacher modifies the information of the account.
    c. Teacher presses the update button.
    d. Information is sent to the cloud.
    e. Cloud stores the information.
6. If the Teacher selects the option to delete account.
    a. Teacher selects the account to delete.
    b. Teacher presses the delete button.
    c. Information is sent to the cloud.
    d. Cloud stores the information.

Create Lesson
Actors: Site Administrator, Cloud.
Main Success Scenario:

1. Site administrators select the option to create new lesson.
2. Site administrator selects the grading certificate of the lesson.
3. Site administrator types in all the characters to be used in the lesson.
4. Save button is pressed.
5. Lesson is sent to the cloud.
6. Cloud stores information.

Activate Accounts
Actors: Site Administrator, Cloud.
Main Success Scenario:

1. Site Administrator selects the accounts option on the home page.
2. Data is retrieved from Cloud.
3. Accounts are displayed on page.
4. Site Administrator selects the account.
5. Site administrator presses the activate account button.
6. Data is sent to the Cloud.
7. Cloud stores data.

Process Login
Actors: Cloud, Student, Teacher, Site Administrator
Main Success Scenario:

1. Cloud receives login information from Student, Teacher or Site Administrator.
2. Cloud checks data with data stored on database for a match.

Store Data
Actors: Cloud, Student, Teacher, Site Administrator
Main Success Scenario:

1. Cloud receives data from Cloud, Student, Teacher or Site Administrator.
2. The account for the Cloud, Student, Teacher or Site Administrator is located.
3. The account is updated with the received data.

Retrieve Data
Actors: Cloud, Student, Teacher, Site Administrator
Main Success Scenario:

1. Cloud receives request for data from Student, Teacher or Site Administrator.
2. Cloud locates the account for the Student, Teacher or Site Administrator.
3. The requested data is retrieved from that account.

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Supplementary Specification

Functionality
All functionality of the entire system should be available through an internet connection. All system errors should be recorded and logged.

Usability
The Site Administrator (Administrator) should be able to build up the skillset to create documents, deliver the lesson and check statistics of the children within an hour of using the site.The child should be able to navigate their way through the different pages within 5 minutes and should be competent in using all features on the site after about 15 minutes. The application should run on all web browsers.

Reliability
Should never be an issue with access to the site. The site should be available 24 hours per day, 7 days a weeks with a maximum downtime of 6%.

Performance
Response time of the application should not be more than 1 second. There should be easy transitions between pages. Performance speed of the application will depend on the speed of the internet connection.Database access response time should not have a latency greater than 10 seconds, anything higher is not acceptable.

Supportability
Testing for the application will be ongoing through the implementation stages of the project. The application is geared for desktop/laptop for the person who is delivering the content and delivered to a tablet device with iPads currently being used for children in the club.