**Table of Contents**

Abstract……………………………….……….……………………………………….……………………………………….……………………………………….………………………1

1 – Introduction……………………………………….……………………………………….……………………………………….…………………………………………………....1

2 – Background……………………………………….……………………………………….……………………………………….……………………………………………………..2

2.1 – Problems in Native Development……………………………………….……………………………………….……………………………………….……………..3

3 – Hybrid Development……………………………………….……………………………………….……………………………………….……………………………………….5

3.1 – Technical Analysis……………………………………….……………………………………….……………………………………….…………………………………….5

3.1.1 – Cross-Compilation Approach……………………………………….……………………………………….……………………………………….……………….5

3.1.2 – Interpretive Approach……………………………………….……………………………………….……………………………………….………………………….6

3.1.3 – Performance……………………………………….……………………………………….……………………………………….………………………………………..7

3.1.4 – Appcelerator……………………………………….……………………………………….……………………………………….……………………………………….8

3.1.5 – HIPAA App Prototype……………………………………….……………………………………….……………………………………….……………………………9

3.2 – Native – Hybrid Comparison……………………………………….……………………………………….……………………………………….…………………….11

4 – Future Trends……………………………………….……………………………………….……………………………………….…………………………………………………12

5 – Conclusion……………………………………….……………………………………….……………………………………….……………………………………………………..13

References……………………………………….……………………………………….……………………………………….…………………………………………………………..14

6 – Educational Considerations……………………………………….……………………………………….……………………………………….……………………………16

**List of Figures**

**Figure 1:** The Market Share of Mobile Devices as of Nov. 2013………………………………………………………………………………………………………….2

**Figure 2:** A timeline of the major introductions into the mobile operating system market…………………………………………………………………3

**Figure3:** Development times of an application on multiple devices……………………………………………………………………………………………………4

**Figure 4:** Objective-C code…………………………………………………………………………………………………………………………………………………………………4

**Figure 5:** Java code…………………………………………………………………………………………………………………………………………………………………………….4

**Figure 6:** Comparison table of interpretive vs. cross-compiled mobile apps………………………………………………………………………………………6

**Figure 7:** Comparison of Hybrid Development Platforms…………………………………………………………………………………………………………………..7

**Figure 8:** The amount of time to use the native app, HTML5 mobile app and PhoneGap app in comparison…………………………………….8

**Figure 9:** Flow Chart on how Appcelerator Builds Native Applications………………………………………………………………………………………………………8

**Figure 10:** The Android implementation showing a list of Chapters within the course. ……………………………………………………………………………….9

**Figure 11:** They Hybrid implementation showing a list of Chapter within the course. …………………………………………………………………………………10

**Figure 12:** Android method to open a new view containing section data…………………………………………………………………………………………………..10

**Figure 13:** Appcelerator code to trigger a new view containing section data……………………………………………………………………………………………..10

**Figure 14:** Comparison of Native, HTML5 , and Hybrid Development………………………………………………………………………………………………………..12

**Figure 15:** Comparative Table between Different Development Approaches……………………………………………………………………………………………..15