Template LaTeX Document

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Abstract

Smartphones are increasingly being used to store personal information as well as to access sensitive data from the Internet and the cloud. Establishment of the identity of a user requesting information from smartphones is a prerequisite for secure systems in such scenarios. In the past, keystroke-based user identification has been successfully deployed on production-level mobile devices to mitigate the risks associated with naive username/password based authentication. However, these approaches have two major limitations: they are not applicable to services where authentication occurs outside the domain of the mobile device such as web-based services; and they often overly tax the limited computational capabilities of mobile devices.

In this paper, we propose a protocol for keystroke dynamics analysis which allows web-based applications to make use of remote attestation and delegated keystroke analysis. The end result is an efficient keystroke-based user identification mechanism that strengthens traditional password protected services while mitigating the risks of user profiling by collaborating malicious web services. We present a prototype implementation of our protocol using the popular Android operating system for smartphones.

1 Introduction

This is going to be a normal paragraph in our introduction.

1.1 Some Background

Some more stuff.

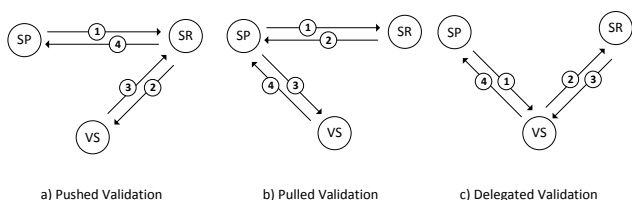a) Pushed Validation   b) Pulled Validation   c) Delegated Validation
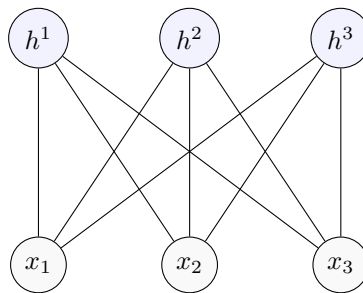
Figure 1: My First Figure

Figure 2: Drawn tikzpicture

1.1.1 Drilled Down

More information here.

2 Tables, figures and subfiles

2.1 Tables and Figures

To insert a figure, you can use the TeXnicecenter menus.

Now for a table!

Table 1: Document and bibliograpghy styles

	document class	bibliography style	
Institute of Electrical and Electronics Engineers	IEEEtran	IEEEtran	◈IEEE
Association for Computing Machinery	sig-alternate	plain	acm
Lecture Notes in Computer Science	llncs	llncs	Springer
IEEE Computer Society	[twocolumn] {article} \usepackage {latex8}	IEEEtran	Φ
General	article	plain	

2.2 Cross-references

Some text here that wants to refer to Table 1. You can also refer to the Figure 1. When you want to refer to a previous section, you can use the \ref command again. Section 2 and Section 1.1.1.

2.3 Sub section through input command

This comes from a separate file. Notice that we have this subsection included in the Navigator.

3 Displaying Mathematics

LaTeX is extremely powerful when it comes to type-setting mathematics. It's one of the core strengths of this system.

There are two ways of displaying maths. One is *inline* and the other is *display* format – in which the whole math sits on its own set of lines.

3.1 Inline Mode

We are going to insert a mathematics equation inline here using a pair of $ signs: $E = mc^2$. As you can see, the display (such as line spacing) does not get messed up by the mathematics as it does with word processing softwares.

3.2 Display Mode

We can also display equations in their own set of lines. To do this, we can use the equation environment.

$$E = mc^2 \tag{1}$$

As you can see, LaTeX inserts the equation number automatically. We can refer to it using the \ref command just as we referred to sections, figures and tables. (E.g. Equation 1.) To get rid of the equation number, simply use the *star variant* of the equation environment. (For this, you need the amsmath package.)

$$E = mc^2$$

Alternatively, we can use the shorthand keys \[and \]

$$E = mc^2$$

4 Mathematical Features

LaTeX has many builtin features and you can get many more easily. Here, we'll see some of these features:

Addition, subtraction, multiplication and division:

$$x + 2 - 25 \times 35 \div 98$$

Superscripts and subscripts:

$$x^2$$

$$x_{(i)}$$

Summation, union, intersection, big-union, integral:

$$\sum_{i=1}^{n} i^2$$

$$x \cup y \cap z$$

$$\bigcup_{i=1}^{n} x_i$$

$$\int_{0}^{n} x^2$$

Fractions, brackets, square root:

$$\frac{x}{y}$$

$$\frac{\sum_i x^2}{\int_0^n x^2}$$

$$\sqrt{\frac{\sqrt{36}}{x^5}}$$

$$2 \times \left(\frac{34}{\frac{124}{356}} \right)$$

Greek letters:

$$\alpha + \beta + \gamma^* + \Sigma + \Theta + 2_\epsilon$$

Matrices and vectors. For this, you need to include the `amsmath` package and then use the `bmatrix` or `pmatrix` environment:

$$\begin{pmatrix} \frac{a}{44} & b \\ c & \sqrt{d} \end{pmatrix}$$

Accents:

$$\hat{x}$$

$$\hat{\imath}$$

$$\dot{x}$$

See the `Math` menu in the IDE for other operations. You can refer to "Short Math Guide for LaTeX" for a lot more examples.

5 Using Symbols

You might come across situations where you need to find new symbols. For this, you can refer to the "The Comprehensive LaTeXSymbols List".

$$x \rightleftharpoons y$$

(Optional) Since this is a long command, we might want to create a shortcut using the `\newcommand` command in the preamble. This also allows us to later change the symbol without having to change the equations.

$$x \rightleftharpoons y$$

6 Gantt chart

7 Algorithms

Algorithm 1 My First Simple Algorithm
---
[2] Randomly populated array Sorted array $i \leq 0$ $i \leftarrow 1$ $i \geq 0$ $j = 0$ 10 blah() carryOutSomeProcessing() i
---

And of course, we can refer to the algorithm using `\ref`: See Algorithm 1 but the good thing is we can also refer to a specific line e.g. Line 4 or Line 7.

8 Code listings

Listing 1: Some C++ Code

```
for(i = 0; i < 10; i++){
// increment the pointer
*p++ = i;
}
```

And we can refer to Listing 1 in text.

9 Bibliography styles

The following table contains specifications for document style and bibliography style as requested by major publications.

Table 2: Document and bibliograpghy styles

	document class	bibliography style	
Institute of Electrical and Electronics Engineers	IEEEtran	IEEEtran	◈IEEE
Association for Computing Machinery	sig-alternate	plain	acm
Lecture Notes in Computer Science	llncs	llncs	Springer
IEEE Computer Society	[twocolumn] {article} \usepackage {latex8}	IEEEtran	Φ
General	article	plain	

Using and managing bibliographies in LaTeX is very easy. These are the steps required to use them:

1. Create a main document file

2. Collect bibliography entries in a `.bib` file. For this:

   - Get the bibliography from Google Scholar/ACM or where ever or
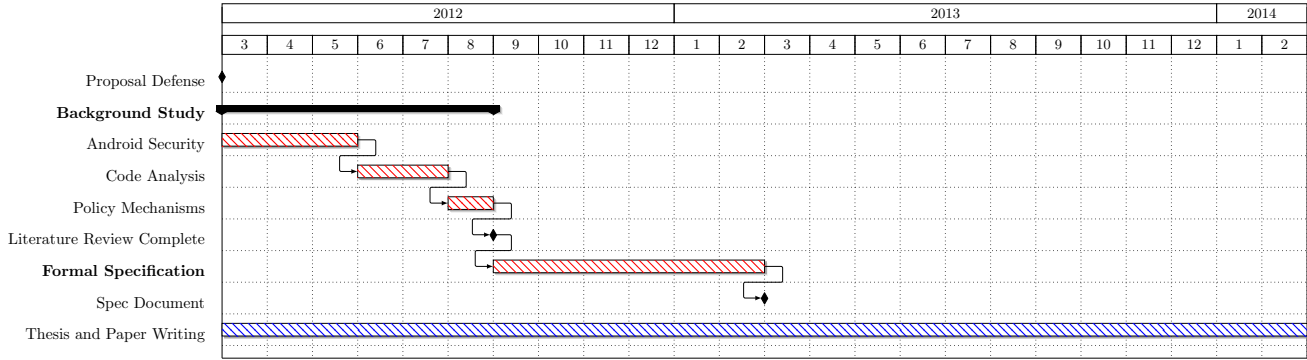
   - Write the entry yourself.

Figure 3: Gantt Chart

3. Add a `\bibliographystyle` and a `\bibliography` command to your document.

4. *Cite* the references where you need using the key.

5. Build the file a couple of times to get the citations in the main document.

10 Bibliography citations

We are going to use this section to put some text in our document and at some points, we are going to inset a reference table 2. This, for example, is going to turn into a reference [1]. This [2] is yet another reference. And so on. [3]

This is going to be a new paragraph.

References

[1] Y. LeCun, Y. Bengio, and G. Hinton, "Deep learning," *nature*, vol. 521, no. 7553, pp. 436–444, 2015.

[2] T. Webster, H. Tsai, M. Kula, G. A. Mackie, and P. Schimmel, "Specific sequence homology and three-dimensional structure of an aminoacyl transfer rna synthetase," *Science*, vol. 226, no. 4680, pp. 1315–1317, 1984.

[3] M. Nauman, S. Khan, and X. Zhang, "Apex: extending android permission model and enforcement with user-defined runtime constraints," in *Proceedings of the 5th ACM symposium on information, computer and communications security*, 2010, pp. 328–332.