



Implementing the PrimeLife Policy Language PPL Opportunity for a 6 months internship

SAP RESEARCH - SAP LABS FRANCE
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The internship will be performed at SAP Labs France in the Security & Trust area of SAP Research in the context of the EU-sponsored project PrimeLife www.primelife.eu. PrimeLife focuses on privacy and data protection, the consortium gathers together major software vendors (SAP, Microsoft, IBM) and high profile universities (Milan, Dresden, Leuven).

The protection of privacy is becoming a major challenge in the information society. Individuals want to protect their autonomy and retain control over personal information, irrespective of their activities. Information technologies hardly consider those requirements, thereby putting the privacy of the citizen at risk.

Today, the increasingly collaborative character of the Internet (notably web 2.0 technology, social networks and mashups) enables anyone to compose services and to contribute and distribute information. Individuals will contribute throughout their life leaving a life-long trail of personal data. This raises substantial new privacy challenges: a first technical challenge is how to protect privacy in emerging Internet applications such as collaborative scenarios and virtual communities. A second challenge is how to maintain life-long privacy; the project's long-term vision is to counter the trend of life-long personal data trails without compromising on functionality. Resolving these issues requires substantial progress in many underlying technologies that substantially advance the state of the art in the areas of human computer interfaces, configurable policy languages, web service federations, infrastructures and privacy enhancing cryptography.

One of the tasks for SAP in Primelife is to analyze and design novel policy languages that are required in other PrimeLife activities. We will analyze, specify the design and architecture, and develop the next generation policy subsystems. The central item will be an extensible language enabling the definition of privacy policies in order to express identified needs. The task includes defining a policy language that takes into account current standards, with the desire to make it compatible with existing solutions, in order to facilitate the adoption of the project results within existing solutions. The language will be completed by a set of components to validate, support, and enforce policies.

The language is already specified and the first version of the privacy policy engine is implemented. The main task of the intern is to understand the existing system and enrich it with the new functionalities that are required for the final version of the policy engine.

The candidate will be expected to participate actively in this work and contribute ideas to the team and project at each phase of the internship.

Within this internship, the student will deal with most of the following tasks:

The ratio between software development and research related activities is expected to be around 50%.

- Java expert
- Expert in XML for Java
- Good skills in UML
- Good skills in persistence systems and database management
- Good knowledge in Firefox Plug-in development
- Fluency in English (working language)
- Good oral and written communication skills
- Willingness to achieve research oriented work
- Knowledge of Web Services standards and Security/Privacy would be a strong plus

Technologies involved:

Java, EJB, XML, XML Schema, XACML, SQL, semantic technologies, OWL, Web Services, Firefox Plug-ins

Candidate Profile

- University Level: Last year of MSc or less if the student has a good profile
- Experience in an object oriented programming language, preferably Java or C++
- Experience with database technology
- Knowledge of web technologies
- Interest in research work
- Fluency in English (working language)
- Good oral and written communication skills

Internship Context

SAP & SAP Research

As the world's leading provider of business software, SAP delivers products and services that help accelerate business innovation for our customers. We believe that doing so will unleash growth and create significant new value – for our customers, SAP, and ultimately, entire industries and the economy at large. Today, more than 47,800 customers in more than 120 countries run SAP applications – from distinct solutions addressing the needs of small businesses and midsize companies to suite offerings for global organizations.

SAP Research –Systematic Thought Leadership for Innovative Business– As the global technology research unit of SAP, SAP Research significantly contributes to SAP's product portfolio and extends SAP's leading position by identifying and shaping emerging IT trends through applied research and corporate venturing.

In contrast to SAP's product groups, which work on new functions and releases, SAP researchers explore opportunities that haven't yet been developed into products. We track technology trends, evaluate the potential impact on SAP solutions and customers, and generate breakthrough technologies. The business model of SAP Research is based on co-innovation through collaborative research. Working with leading universities, partners, customers, and SAP product groups, SAP Research oversees the development of promising ideas and prototypes into market-ready software for maximum customer value.

SAP Research is headquartered in Walldorf, Germany. SAP Research has identified six long-term and global research programs, among them the **Security & Trust Research Program**, which is lead by SAP Research at SAP Labs France.

SAP Research Sophia Antipolis, SAP Research Center Sophia Antipolis is located in the setting of one of the most important scientific parks worldwide. A high concentration of IT and telecommunication industries within walking distance, proximity to partners and customers, as well as the educational establishments in the region provide SRC Sophia Antipolis with an ideal working environment. Based at SAP Labs France, the focus of SRC Sophia Antipolis is mainly in the research field of security and trust. However, of great interest is the work on e-government and public safety applications. Local collaborations with external partners and educational organizations in the region, such as Inria, Eurécom Institute, and the University of Nice Sophia Antipolis, provide a strong benefit to these research activities. SAP Research also participates to the French poles de competitivités *Risques* (Risk) and *Solutions Communicantes Securisees* (Secure Communicating Solutions). Beyond that, SAP Research Sophia Antipolis is collaborating with industrial partners and customers which provide a strong benefit to the research activities.

30 researchers are working at SAP Labs France (among ~200 employees) and are mainly involved on European Research Projects in the area of Security & Trust with applications to eGovernment, Mobility and Public Security.

Standard Internship Package

- Salary: depending on the length of the internship and your diploma
- Lunch: SAP Labs France has a local cafeteria; interns contribute 2,18 Euro/lunch, like other SAP employees.
- Holidays: based on French holidays
 - 2011: January 1st; April 25th, May 1st, May 8th, June 2nd ; July 14th; August 15th , Nov 1st and 11th; December 25th, are French bank holidays.
- Travel: no personal travel (your trip to and from Nice) will be paid by SAP.
- Accommodation: we can propose to you an accommodation for the duration of your internship. If you accept SAP will take care of the rent but 275 Euros will be deducted from your monthly salary. Otherwise you are on your own.

Contacts and Procedure

Please send your CV and any relevant documents to the following persons stating the title of the Internship in the Subject [Internship Application] Security Policy Composition

Supervisor
Slim Trabelsi
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Administrative point of contact
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