

Rapport de fin de Séjour à l'Etranger
Année Universitaire 2004/2005

par Samuel Rollet

Transmis à l'Université Claude Bernard Lyon 1
Pour compléter un dossier DUETI
Juin 2005

RÉSUMÉ

Ce rapport de fin de séjour à l'étranger se divise en deux parties. La première partie donne des informations sur la vie à l'étranger et sur l'université Concordia. Elle commence par présenter Montréal, la recherche de logement et l'inscription à l'assurance maladie. Elle poursuit en donnant des informations sur les magasins, les transports, l'argent et le temps. Elle donne ensuite des détails sur l'Université Concordia : ses campus son administration et ses associations, les différentes activités de divertissement et sportives offertes, et la faculté d'industrie et d'informatique. La seconde partie intitulée "The Web Browsers and their plug-ins, a new means of access to entertainment". Elle commence par présenter les capacités des navigateurs Internet seules, puis comment les plug-ins accroissent ses capacités pour intégrer des contenus multimédia sur les sites internet.

Table of Contents

List of Figures	iii
1. INTRODUCTION	1
2. ENVIRONMENT	2
2.1 Montreal	2
2.2 Housing	2
2.3 Healthcare	3
2.4 Shopping	3
2.5 Transportation	4
2.6 Money	4
2.7 Weather	5
3. CONCORDIA UNIVERSITY	6
3.1 Campus	6
3.2 Associations and Administrations	6
3.3 Recreations	7
3.4 Faculty of Engineering and Computer Science	7
4. CLASSES	8
4.1 Organization	8
4.2 List of Classes	8
4.2.1 COMP 228	8
4.2.2 COMP 229	9
4.2.3 COMP 248	9
4.2.4 COMP 249	9
4.2.5 COMP 238	10

4.2.6	STAT 249	10
4.2.7	MATH 364	10
4.2.8	ENCS 282	11
5.	TECHNICAL REPORT	11
6.	CONCLUSION	

List of Figures

<i>Fig. 1: Montreal Skyline</i>	2
<i>Fig. 2: RAMQ Card</i>	3
<i>Fig. 3: Montreal Metro Map</i>	4
<i>Fig. 4: Bill of \$20</i>	4
<i>Fig. 5: Example of Temperature</i>	5
<i>Fig. 6: Loyola Campus</i>	6
<i>Fig. 7: SGW Campus</i>	6
<i>Fig. 8: ISO Staff</i>	6
<i>Fig. 9: CISA Staff</i>	7
<i>Fig. 10: Stingers Football Player</i>	7
<i>Fig. 11: New EnCS & Visual Art Complex</i>	7

1. INTRODUCTION

As a former student of the computer science Lyon 1's IUT of Bourg-en-Bresse I enrolled in an exchange program for one year. My destination was Concordia University, Montreal, Canada.

This report is divided into two parts. The first one is an overview of the life in Montreal. It presents the town; explain how to find a flat; how to get a health insurance; gives information on shopping, transportation, money and weather. It then details information on the university: the campuses, the administration and the associations, the recreational activities offered and then the Engineering and Computer Science Faculty. This part ends with the detail of the courses I followed.

The second part is a technical report entitled "The Web Browsers and their plug-ins, a new means of access to entertainment". It details web browsers capability and how plug-ins extends them.

2. ENVIRONMENT

2.1 Montreal



Fig. 1: Montreal Skyline

Situated just 60 minutes from the American border on an island at the confluence of the St Lawrence and Outaouais rivers “Montreal has been the crossroads of North American history, culture and commerce for more than 300 years”. Its name comes from the Mont-Royal mountain situated in the center of

the town. Today it’s a cosmopolitan city of 3 million on 500km². French and English

cultures are growing together, with new cultures brought by new immigrants from all around the world.

Montreal is home to industry, culture and sports. SoftImage and Ubusoft are two examples among many of cutting-edge industries you can find. The Old Montreal has the unique 17th century European charm. It hosts the world’s largest jazz festival, the Just four Laughs comedy festival, and important film festivals. Montreal has important professional sport teams: the Alouettes (American football), the Canadiens (hockey). It also hosts a Formula 1 Grand Prix racing every summer.

Montreal is gathering the largest university population in Canada. There is more the 145,000 student in four universities.

2.2 Housing

It’s quite easy for an international student to find a place to stay at the beginning of a new term. Most new students arrive in town without a final address. They just book a room in a hotel or a youth hostel for a week or two. September is still in the summer period so it’s mandatory to book somewhere. You can find a lot of advertisements of peoples looking for a roommate in the newspapers or in the coffees. The standards adds in the newspapers can also be interesting.

Concordia University helps its students to find a flat at the beginning of each term. Housing workshops are organized between new student and older ones to provide information on the town and its different districts. The CSU (Concordia Student Union) also provides a database of classified advertisements regarding housing. Many other internet websites can also be used as resources to find a flat.

Prices for an apartment could vary a lot. You need between \$600 (Canadian dollar) and \$700 to live downtown. However you can find a bigger place for about \$400 at 20-30 minutes from the center. A further place can be interesting if it's close to a metro station.

Most of the rents are all taxes included (water, electricity and heating). However it's important to check this before you sign anything, heating becomes very expensive during the winter.

2.3 Healthcare



Fig. 2: RAMQ Card

Every international student has to subscribe to a private health insurance. You are register for one by your university prior to your arrival in Canada. As a French student you can be register to the Quebec provincial healthcare program. It's completely free, and you can cancel your registration to the private health insurance. To do so you need to have the SE401-Q106 form filled-in by your French insurance

and your French university. After your arrival you have to go to the *Régie de l'Assurance Maladie du Québec* to get your health insurance card.

Quebecker health insurance is the best one in North America but no dental plan is included. It's up to you to subscribe to a private dental plan. Nothing is completely refunded. You have to pay a part of your drugs and medical appointments.

Concordia offers a free on-campus health care clinic for all its students and staff. You can meet a nurse or a doctor for any problems you may have.

Drugstores are really deferent from the French ones. It's more like a grocery store or a hardware shop with a drugstore on one side. It's also interesting to note that some drugs don't have the same name as in Europe. For example the paracétamol is known as Tylenol.

Concordia health clinic

2.4 Shopping

Most stores are open every day, until 7:00pm during the week and 4:00pm during the weekend. You can find convenience stores open 24/7 all around the town. It's handy but their prices are usually higher than in a classical supermarket.

Downtown is full of shopping centers. Most of them are interconnected by underpass in the underground levels. They are also connected to the metro stations so you don't need to go out during the winter.

There is no sale period as in France. You can find sales all the time. The price of the life is equal to the one in France but the price of clothes is inferior.

2.5 Transportation



Fig. 3: Montreal Metro Map

Public transportation is fast and frequent in Montreal. The *Société de transport de Montréal* (STM) is in charge of four metro lines and 165 bus lines. Buses are operated 24/7, but the metro stops from 1:00am to 5:00am. With your student ID card you can get a one year \$9 metro card allowing you to buy a month ticket for \$32.50. With this card you can use buses and metro as much as you want. The standard price for a one time ticket is \$2.50.

It's easy to find a cab and they arrive quickly when you call them. It seems that they are less expensive than in most other North American cities.

2.6 Money



Fig. 4: Bill of \$20

Opening a bank account is really easy for an international student as long as he has all the required documents. You need your passport, your study permit, a proof that you live in Quebec and a proof of your registration in a university. Downtown bank agencies are used to see new students for that kind of request. Ask to your

French bank the list of Canadian banks they have agreement with. It's important information to avoid charges of your international money transfers. You have to pay to get checks from your bank but it's not a common way to pay. The bank provides you with a debit card to pay all your purchases and to get cash from an ATM. They also offer you a credit card. It's quite different from the French credit card. With this one you can spend a credit of money you don't have, and you have to pay it back with interests.

French international credit cards are completely functional. Note that they are not using the smart card but the recording tape. As a result, you don't need to type your PIN code, but you have to sign the ticket.

The rate change between euro and Canadian dollar is currently really interesting. You can obtain approximately \$1.50 for 1€.

All the prices are given without taxes except for wine and in Chinese restaurants. Taxes are around 15% gathering a provincial and a federal tax. In

bars and restaurants you have to tip the waiters because service is not included in the menu price.

2.7 Weather



Fig. 5: Example of Temperature

Climate in Montreal vary greatly by season and from day by day thanks to competing climatic influences. Precipitation happens frequently. The snowfall average is 2.4 meters per years, and rainfalls are common throughout the

year. The city spends more the \$50 million on snow removal each year.

The coldest month is January with a daily average of -10°C . Due to the wind shield factor the perceived temperature can be much lower than the actual temperature. For example -27°C can appear as -40°C . July is the warmest month with a daily average of 20.9°C .

The downtown underground city is really enjoyable during the winter. You can do any kind of shopping with no need of going outside. Some business buildings are also connected directly to the metro by underpass as the new Concordia building will be next fall.

3. CONCORDIA UNIVERSITY

Concordia University is the result of the 1974 merger of two well-known academic institutions in Montreal: Loyola College, founded in 1848 and Sir George Williams University, founded in 1926.

Today's Concordia gathers over 31,000 students from more than 110 countries. More than 180 undergraduate programs and 70 Masters Programs are offered into four faculties: Arts and Science, Engineering and Computer Science, Fine Arts, and the John Molson School of Business.

3.1 Campus



Fig. 6: Loyola Campus



Fig. 7: SGW Campus

Concordia is composed of two different campuses. Loyola campus is the west end campus. It's an Oxford-style college, reflecting a re-working of English medieval architecture. It is host to the art and science faculty and a part of the administration. The art and science faculty is located in a brand-new building, the Richard J. Renaud Science Complex.

The Sir George Williams Campus is a collection of buildings in downtown Montreal, all within a few blocks of each other. This campus is mainly made up of post-war buildings that were built or acquired as Concordia grew. This campus is in constant growth. A new Engineering, Computer Science and Visual Art Complex is scheduled to open this fall. A new building for the John Molson School of Business is also planned.

3.2 Associations and Administrations



Fig. 8: ISO Staff

Concordia offers a well structures administration committed to the creation of "a healthy learning environment centered on student needs and concerns".

The International Student Office (ISO) is an invaluable resource for international students. It organizes tours of the university and assists new students with administrative problems.

They provide information packages and orientation sessions for new students. They have a great experience in

immigration regulations, cultural adaptation, working on campus, health insurance, academic support & referral, letters for military deferment and transfer of funds.



Fig. 9: CISA Staff

A huge number of students associations exist within Concordia. They offer a large range of activities. The Concordia International Students' Association (CISA) is also important for new international students. They are greeting new students and organize cheap trips all along the years. Thanks to

them you can go to New York, Boston, Toronto or Quebec for a three days weekend for less than \$200.

3.3 Recreations



Fig. 10: Stingers Football Player

At Concordia, athletics and recreation "is an integral part of student's university life". You can sign up for friendly competition in any kind of sport. The Concordia athletic facilities are split between the university two campuses. It include two artificial playing surfaces, a 4,000-seat stadium a gymnasium and a weight room.

The university has a range of athletics teams in hockey, football, soccer, basketball, rugby and wrestling called the Concordia Stingers.

3.4 Faculty of Engineering and Computer Science



Fig. 11: New EnCS & Visual Art Complex

The Faculty of Engineering and Computer Science is one of the largest in Canada with a student population of over 4,000 undergraduate and 2,700 graduates. It offers seven engineering undergraduate programs: Building, Civil, Computer, Electrical, Industrial, Mechanical and Software Engineering.

The computer science program is divided in options:

information, computer or software systems. It's also possible to a customized program with the list of computer science classes.

4. CLASSES

4.1 Organization

Classes are a combination of theory and hands-on experiences. They are half lecture and half tutorials where you apply your knowledge on the computers. You also have to work on small projects at home and to hand-it back each week.

Evaluation is made with different grades on 100. Assignments have a minor part in the final grade. One or two midterms are worth between 20 and 40%. The final exam has the maximal weight (between 50 and 70%). The final grade is a letter between A+ and D- if you succeed in the class, F if you fail.

4.2 List of Classes

As a former French computer science student at the Bourg-en-Bresse's IUT I selected classes in the departments "Computer Science" and "Mathematics and Statistics".

My classes were aimed at providing me new knowledge in areas of computer science I was not familiar with. I also selected math classes to keep practicing this field important in France.

4.2.1 COMP 228: System Hardware

Instructors: H.F. Li

Session: Fall 2004

Grade: A+

Description:

The objective of this course is to introduce key concepts in computer organization at the level of assembly/machine language. It covers features that affect programmability and performance at the hardware layer. Three fundamental system concepts (locality of data, concurrency of processing and atomicity of operations) are introduced. Hardware details are also discussed (processor architecture, data-paths, I/O interfaces, and memory subsystems). Assembly language programming (NASM-based) is used as a tool to reinforce knowledge presented.

4.2.2 COMP 229: System Software

Instructors: R. Jayakumar

Session: Winter 2005

Grade: B+

Description:

System Hardware (COMP228) is a prerequisite to the course. The objective of this course is to give students a thorough understanding of system software and how they help program development and program execution. The following main topics are taught: system software for program development (compilers, assemblers, linkers and loaders), and system software to control program execution and to improve utilization of the hardware (operating system; specifically, process management, file management, and device management). Students are also expected to get some basic working knowledge of and experience with the Unix operating system through programming assignments.

4.2.3 COMP 248 Introduction to Programming

Instructors: Juergen Rilling

Session: Fall 2004

Grade: A

Description:

The primary objective of this course is to enable students to understand the principles of programming. The language used for the course is Java 1.5, chosen because it supports object oriented programming and because it is becoming widely used in industry. The course include discussions and explanations of writing, compiling, and running programs; expressions, variables, and assignments; control structures; objects and classes, methods, and arrays. The new features of the Java SDK 1.5 are also covered.

4.2.4 COMP 249 Programming Methodology

Instructors: Prabir Bhattacharya

Session: Winter 2005

Grade: C+

Description:

COMP 249 look at the concepts and elements that support sophisticated software applications. The objective of this course is to enable students to design and implement programs and user interfaces in Java using packages, classes, interfaces, inheritance, methods, and data structures. The topics covered are inheritance, polymorphism, exception handling, input/output,

files, serialization, recursion, data structures and collections and graphical user interfaces.

4.2.5 COMP 238 Mathematics for Computer Science I

Instructors: L. Narayanan

Session: Fall 2004

Grade: B

Description:

This course introduces students with mathematical concepts related to computer science and computation. It is divided in three topics: Logics (Propositional logic, logical equivalence and rules of inference, predicate calculus, arguments with quantified statements); Proofs (Direct proof, indirect proof, Mathematical induction); Sets, functions and relations (Sets, functions, relations, equivalence relations and partial order).

4.2.6 STAT 249 Probability I

Instructors: A. R. Padmanabhan

Session: Fall 2004

Grade: A

Description:

This course is the first level of the statistics program. It covers axiomatic approach to probability; combinatorial probability; discrete and continuous distributions; expectation; conditional expectation; random sampling and sampling distributions.

4.2.7 MATH 364 Analysis I

Instructors: Prof. Cohen

Session: Winter 2004

Grade: A-

Description:

This course covers mathematical rigour on: proofs and counter examples; quantifiers; number systems; cardinality, decimal representation, density of the rationals, least upper bound, sequences and series; review of functions, limits and continuity. It includes the proof of numbers of theorems such as the chain rule, Rolle's, mean value theorem, Cauchy mean value theorem, l'Hospital's, Lipschitz and Lemma.

4.2.8 ENCS 282 Tech. Writing and Communication

Instructors: Prof. C. Jetté

Session: Winter 2004

Grade: B

Description:

Technical writing is the presentation of technical or scientific data with clarity and precision at a level suited to a specific audience. This course is targeted to full time international students. It is designed to make them progress with professional English. They have to practice writing, reading and speaking throughout the term. Writing assignments are due every two weeks. Oral presentations are also part of this course. Students have to write a technical report during the term as a partial fulfillment of this class following the "Form and Style" guide. This course also prepares students to the University Writing Test (UWT).

5. TECHNICAL REPORT

The technical part of the report is the Technical Report from the ENCS 282 course. The subject of this report has to be related to computer science and technologies associated with entertainment. The work for this report is a research work. We had to give sources of every pieces of information. At least three of the sources had to be hardcopy sources. Formatting and organizing the report was also an important part of the work. We had to follow the "Form and Style" guide for all format and style requirements. The length of the report was limited to prevent dissimilarities between students. This report has been graded A+ and have a 20% weight in the final grade of this course.

**The Web Browsers and their plug-ins,
a new means of access to entertainment**

**by
Samuel Rollet
ID: 5397677**

**A Technical Report
Submitted in partial fulfillment
of the requirements of
ENCS 282
Concordia University
March 2005**

Table of Contents

List of Figures.....	iii
1. INTRODUCTION.....	1
2. WEB BROWSERS.....	2
2.1 Web Browsers Background.....	2
2.2 Web Browsers Display Capability.....	3
2.2.1 Languages Interpreted by the Web Browsers.....	3
2.2.2 Others Contents Displayed by Web Browsers.....	6
3. PLUG-INS.....	7
3.1 Plug-ins background.....	7
3.2 How Plug-ins Work.....	7
3.3 How to Display Plug-in Content into a Web Page.....	8
3.4 Entertainment Plug-ins.....	9
3.4.1 Audio and Video Plug-ins.....	9
3.4.2 Plug-ins for Animated Content.....	11
4. SUMMARY.....	12
REFERENCES.....	13
APPENDIX A: THE <OBJECT> TAG ATTRIBUTES.....	16
APPENDIX B: TOPIC APPROVAL.....	17
APPENDIX C: CONFIRMATION OF ORIGINALITY.....	19
APPENDIX D: HARD COPY REFERENCES.....	21

List of Figures

Fig. 1	A very simple HTML document.....	4
Fig. 2	Style definition in CSS.....	4
Fig. 3	Interaction with the user using JavaScript.....	5
Fig. 4	Object tag to integrate plug-ins content.....	9
Fig. 5	Video displayed into a web page.....	10
Fig. 6	Game integrated into a webpage.....	11

2376 Shirley St.
LaSalle QC
H8N 1E6

March 22, 2005

Professor Corinne Jetté
Faculty of Engineering & Computer Science
Concordia University
GM 805-07
1550 de Maisonneuve W.
Montreal, QC
H3G 1M8

Technical report transmission

Dear professor,

Please find enclosed two identical technical reports due for ENCS 282/4 section EE. These reports are submitted to you in partial fulfillment of this class. The subject of these reports is "The Web Browsers and their plug-ins, a new means of access to entertainment".

Please note that the books *JavaScript Pocket Reference, 2nd Edition* and *HTML Pocket Reference, 2nd Edition* are not hardcopy but e-books, therefore you won't find copies of their pages in appendix D. The e-book *JavaScript Pocket Reference, 2nd Edition* didn't have page numbers, therefore you won't find out which pages were used in the list of references.

Please read a copy of this technical report and appreciate the research, writing and formatting. Then mark it according to the value you award to it.

Sincerely,

Samuel Rollet

SR
CC

Enclosure: (2) technical reports.

ABSTRACT
The Web Browsers and their plug-ins,
a new means of access to entertainment
by Samuel Rollet

This report presents how the display capabilities of web browsers and their plug-ins lead to entertaining content on web pages. It reviews the evolution of web browsers. It describes their actual capabilities in language interpretation, both static like HTML and XHTML and dynamic like JavaScript. It explains that aside from text content web browsers can also display several image formats. It then talks about the background of plug-ins and how they enhance web browser capabilities. It describes how they interact with the web-browsers. It explains how to integrate plug-in related content on a web page using a language understood by the browsers. Finally it introduces the main plug-ins to display sound, video and animated contents. It concludes that web browsers are not only used to display information but also to entertain because they can display multimedia content.

Key Words: web browser, plug-in, multimedia, entertainment.

March 15, 2005

1. INTRODUCTION

Web browsers are commonly used to access web pages on the internet. Their capabilities can be extended using plug-ins to display specific content. The combination of web browsers and plug-ins allows for a display of more than just simple information. It is now possible to view entertainment content embedded into web pages. First this report will show the capability of web browsers on their own, and then how plug-ins work and how they make it possible to view multimedia content on the web.

2. WEB BROWSERS

A web browser is a program that allows users to access content on the internet.

This chapter will detail how they have evolved and what kind of content they can display on their own.

2.1 Web Browsers Background

Before 1993 web browsers were only able to display text one line at a time. In summer 1993 Mosaic was launched. Developed by Marc Andreessen at the University of Illinois, it was the first web browser to display web pages in a window. It was also the first to display graphics images [1]. At the end of 1994, Netscape Navigator 1.0 was released. It was a commercial browser developed by the same team who developed Mosaic. It's not before 1996 that Microsoft decided to improve its own web browser Internet Explorer. It was the beginning of the "Browser wars". At the end of 1996, Internet Explorer was integrated to the Windows operating system [2]. The popularity of Internet Explorer has grown, attaining 96% of market share in 2002. Mozilla Firefox is a new browser based on the Netscape source code. It was first released at the end of 2004, and offers a more secure alternative to Internet Explorer [14].

2.2 Web Browsers Display Capability

Web browsers allow users not only to display content, but also to interact with web pages. This part details what kind of programming languages are used to create web pages. It also shows what other kind of content can be displayed by a browser.

2.2.1 Languages Interpreted by the Web Browsers

Web pages are coded using different languages. Some of them produce static content, whereas others produce interactive content.

2.2.1.1 Static Content of a Web Page. Static content is usually defined using one of the two languages: HTML or XHTML. HTML (HyperText Markup Language) is a markup language used to define the layout and the links between web-pages [9]. Html tags can be divided into four different groups. The first group defines the purpose of the text (title, heading...). The second defines how the text should be display (center, bold, italic, color...). The third group defines links between pages. The last one defines widget elements for form, such as buttons or textboxes [15].

XHTML (Extensible Hypertext Markup Language) is a more recent markup language, it has the same capacity has HTML, but the syntax is stricter [9] [16].

Once a web browser receives an HTML or XHTML page, it interprets the tags of the page, and displays the content between the tags according to what the tags

specify. In the example code from Fig. 1, <h2> indicates that the text enclosed is a heading of level 2 [6]. The tag <i> indicates that the enclosed text is in italic [7].

The <a> tag defines a link to the web page at the address <http://www.ora.com> [4].

```
<html>
<head>
<title>My first HTML document</title>
</head>
<body>
<b2>My first HTML document</b2>
Hello, <i>World Wide Web!</i>
<!-- No "Hello, World" for us -->
<p>
Greetings from<br>
<a href="http://www.ora.com">O'Reilly & Associates</a>
<p>
Composed with care by:
<cite>(insert your name here)</cite>
<br>&copy;2000 and beyond
</body>
</html>
```

Fig. 1: A very simple HTML document [9].

The design of documents written with markup languages is defined using CSS (Cascading Style Sheets) language. This language defines the color, the font, the size and the position of elements between tags of a markup language. The purpose of this language is to separate the content and the presentation of a web page [17]. In the example code of Fig. 2 the <h2> tag is defined to be displayed centered, in red, with the font Times New Roman in italic and with a large size.

```
h2 {
  text-align: center;
  color: red;
  font-size: large;
  font-family: "Times New Roman", serif;
  font-style: italic;
}
```

Fig. 2: Style definition in CSS [17].

2.2.1.2 Dynamic Content of a Web Page. Dynamic content is also possible in regular web pages using client side scripting. Client side scripting refers to programs executed by the web browser on the user's computer. It's possible to define actions to perform according to how the user interacts with the webpage. The most used client side scripting language is JavaScript. The code is embedded in a web page and executed when the user does some action [18]. In the example of Fig. 3, the tag `<script>` is an HTML tag that defined the enclosed text as a script to be executed by the web browser. The `confirm()` function tells the browser to display a dialog box. If the user clicks on the button Yes, then the browser will write the date in the document [11]. The use of HTML or XHTML in association with CSS and JavaScript to create interactive websites is known as DHTML (Dynamic HTML). This technique is used to create small applications and display them as web pages [19].

```
<script>
if (confirm("Do you want to know the time?"))
{
    document.write("The time is: " + new Date());
}
</script>
```

Fig. 3: Interaction with the user using JavaScript [11].

2.2.2 Others Contents Displayed by Web Browsers

Web browsers do not only display formatted text. The principal other kinds of content they can display on their own are pictures. They support different formats of pictures like JPEG, GIF and PNG [20]. Images are integrated using the `` tag with the address of the image. The web browser loads the image and displays it in the webpage [13].

This chapter has shown that the abilities of a web browser are limited if it has to display the content of the web pages on its own. It is possible to extend those abilities by the use of plug-ins.

3. PLUG-INS

Plug-ins are computer programs that “expand the capabilities”[3] of another program. In web browsers, plug-ins are used to display a specific type of content inside a web page [21]. This chapter presents how they work, and what kind of entertaining content they can add to a webpage.

3.1 Plug-ins background

Plug-ins were first introduced in web browsers by the Netscape Communications Corporation on January 1996 for Netscape Navigator 2.0. The idea was to define a standard on how those extensions should interact with the web browser. This guarantees the stability of the interaction of the browser with other programs, and allows any developers to create their own plug-ins for their specific applications. Microsoft quickly integrated this technology into Internet Explorer 3.0. Plug-ins are now an essential extension to modern web browsers to display enhanced content such as multimedia [3].

3.2 How Plug-ins Work

When a web browser starts, it checks for installed plug-ins. Each installed plug-in is associated with one or more file types called MIME (Multipurpose Internet Mail Extensions) types. When a user opens a page with a media type that requires a plug-in to be displayed, the web browser performs a sequence of operations. It check for an associated plug-in for this specific MIME type. If it

finds one, it loads, initializes and executes it. If the required plug-in is not found, the web browser launches an assistant to help the user to download the appropriate one [12].

Plug-ins can be divided into two types. Windowed plug-ins are displayed in their own windows. Windowless plug-ins are drawn into the same window as the rest of the webpage that called them. Therefore windowless plug-ins extend the possibilities of design and functionality for a webpage [12].

3.3 How to Display Plug-in Content into a Web Page

Two HTML tags can be used to integrate new media into a webpage. The `<object>` tag is the standard HTML tag to add an element to a page. As illustrated by Fig. 4, the `<object>` attributes define what should be displayed, and how. `CLASSID` or `DATA` specifies the address of the file to display depending on the object type. `CODEBASE` specifies the address where the appropriate plug-in can be found if it's not already installed. `TYPE` specifies the MIME type of the data. Other attributes are used to specify the position and the size of the object. The detail of all attributes is given in Appendix 1. The `<param>` tag can be added between `<object>` and its end (`</object>`) to pass information to the plug-in itself on how to display the content [8] [12].

```

<OBJECT
CLASSID="classFile"
DATA="dataLocation"
CODEBASE="classFileDir"
TYPE="MIMEtype"
ALIGN="alignment"
HEIGHT="pixHeight"
WIDTH="pixWidth"
ID="name"
>

```

Fig. 4: Object tag to integrate plug-ins content [12].

The <embed> is a nonstandard element of HTML. It works on the same principle as <object> but is less flexible. It is now only used for backward compatibility with older web browsers [5] [12].

3.4 Entertainment Plug-ins

The addition of plug-ins and a general evolution in technology allow web developers to change web pages from giving information to displaying entertaining content like videos or games.

3.4.1 Audio and Video Plug-ins

The principal plug-ins used to play audio and video files on a webpage are Microsoft Windows Media Player, RealPlayer, and Apple QuickTime Player. Those applications are stand-alone applications, but they also have associated plug-ins to be displayed as part of a webpage. They can display standard audio and video files [22] [23]. They can also play streaming audio and video files. “Streaming is the process of sending media over a network for viewing in real

time.”[24] This technology is used to display live content or content that is too big to be downloaded first and played later [24].

The example given by Fig. 5 is the trailer of the “Million Dollar Baby” movie. It shows how a video can be integrated into a webpage using the Apple Quick Time plug-in.



Fig. 5: Video displayed into a web page [27].

3.4.2 Plug-ins for Animated Content

Plug-ins are also used to integrate animated content. Most animated content is developed using Macromedia Flash or Shockwave technology. Those two technologies allow developers to create animated graphical programs. These programs can be interactive. It integrates vector and 3D technology [25] [26].

Fig. 6 gives an example of a game developed in Flash and displayed into a webpage.



Fig. 6: Example of a game integrated into a webpage[28].

4. SUMMARY

As presented in this report, web browsers have evolved to display, organize and format information and pictures. They are also able to interact with the user.

Plug-ins increase the capabilities of web browsers to integrate more specific content into web pages. They interact with the browsers and the content can be added to a webpage with simple tags. A broad range of available plug-ins allows displaying multimedia contents like videos and games into the web pages. The access to entertainment on the web is therefore possible because of web-browsers and the plug-ins that extend their capabilities.

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APPENDIX A: THE <OBJECT> TAG ATTRIBUTES [29]

Optional Attributes

DTD indicates in which DTD the attribute is allowed. S=Strict, T=Transitional, and F=Frameset.

Attribute	Value	Description	DTD
align	left right top bottom	Defines the text alignment around the object	TF
archive	URL	A space separated list of URL's to archives. The archives contains resources relevant to the object	STF
border	pixels	Defines a border around the object	TF
classid	class ID	Defines a class ID value as set in the Windows Registry or a URL	STF
codebase	URL	Defines where to find the code for the object	STF
codetype	MIME type	The internet media type of the code referred to by the classid attribute	STF
data	URL	Defines a URL that refers to the object's data	STF
declare	declare	Defines that the object should only be declared, not created or instantiated until needed	STF
height	pixels	Defines the height of the object	STF
hspace	pixels	Defines the horizontal spacing around the object	TF
name	unique_name	Defines a unique name for the object (to use in scripts)	STF
standby	text	Defines a text to display while the object is loading	STF
type	MIME_type	Defines the MIME type of data specified in the data attribute	STF
usemap	URL	Specifies a URL of a client-side image map to be used with the object	STF
vspace	pixels	Defines the vertical spacing around the object	TF
width	pixels	Defines the width of the object	STF

Standard Attributes

id, class, title, style, dir, lang, xml:lang
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APPENDIX B

TOPIC APPROVAL

APPENDIX C

CONFIRMATION OF ORIGINALITY

APPENDIX D: HARD COPY REFERENCES

1. John Cassidy, *Dot.con*, Allen Lane The Penguin Press, England: London, 2002
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CONCLUSION

Take part in an exchange program is an incomparable experience. It allows you to travel and study at the same time. I extended my computer science knowledge. At the same time I improved my communication skills in English. North American Universities are good places to meet peoples from all-around the world. I now have friends in Canada, USA, Japan, Ecuador, Sweden and Cyprus. I took advantage of the trips organized by CISA to visit the main north-east American towns (Toronto, Boston, New York, Ottawa and Quebec). It's interesting to be in contact with different cultures because you need to adapt.

The main problem I had was related to my registration. Because of a mistake in my application I was register as a normal student for a three years program. The registration fees were \$24.000 for the year. It took me about a week to put it in order.

Since the beginning of my IUT second year I knew I wanted to visit a foreign country. I selected the university I wanted to go to from a list provided by the IUT. My choice was based on geographical and language criteria.

My plans for the future are still the same. I will enroll in an engineer school in France for the next year. However my international experience makes me want to visit other countries during my program.

Spend a year abroad is a great way to enlarge your knowledge and to open yourself to the world. I advise every student to do it. However it asks an important investment in time to prepare your departure. You also have to be ready to leave behind everything you're used to. You also need to adapt to another way of life. Those difficulties are also a part of the interest of such a tip. They are the main challenges you have to face.