SKILLS CANADA NATIONAL COMPETITION

WINNIPEG
2017

OLYMPIADES CANADIENNES DES MÉTIERS ET DES TECHNOLOGIES

TEST PROJECT / PROJET D'ÉPREUVE

WEB DESIGN AND DEVELOPMENT
CONCEPTION ET CREATION DE SITES WEB

SECONDARY /
NIVEAU SECONDAIRE

Skills Compétences
Canada
Winnipeg2017

Module A: Web Site and Logo Design

Introduction

The *Winnipeg Railway Museum* would like to redesign its Web site. The current site is over fifteen years old, features a dated design, has poor choice of fonts, is not accessible to all, and was created at a time when the only device that would be used to access Web sites was a personal computer. The museum would like a modern design that is completely accessible to all people and devices. As part of the modernization of their brand, they would also like a new logo designed. The current site is shown in *Figure 1* below.
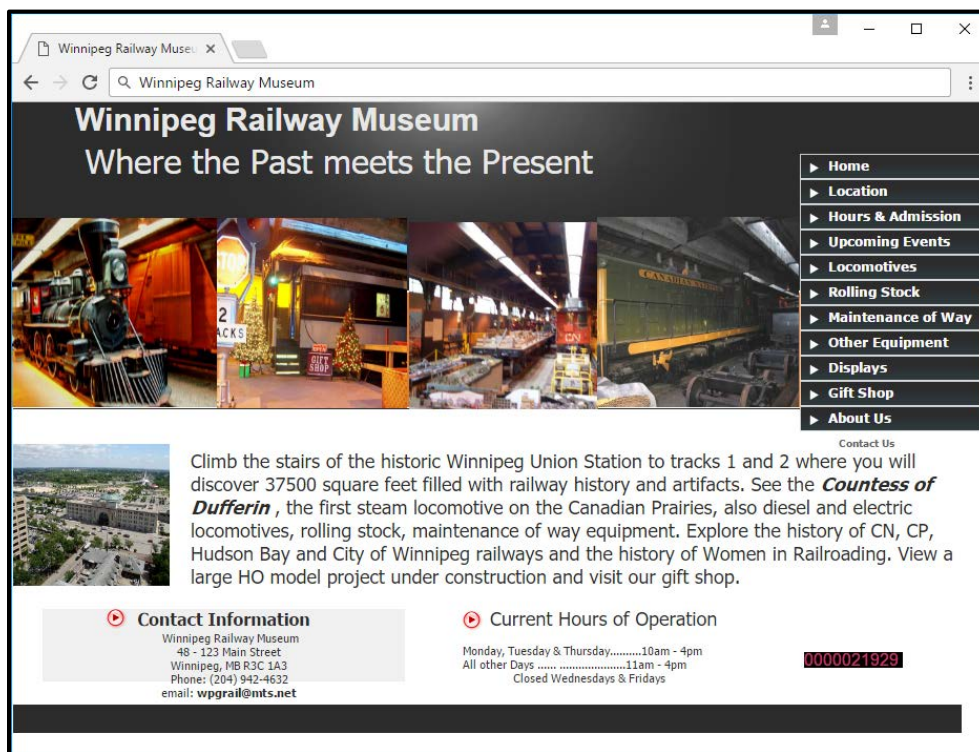
Figure 1: The current Winnipeg Railway Museum Web site.

Requirements

Although the museum is not entirely certain as to what it is that they would like for their new site and logo, they have provided you with some other museum sites and logos that they like. The screenshots of these sites are shown in *Figures 2, 3, 4, and 5*, and the logos in *Figures 6, 7, 8, and 9* on the following pages.
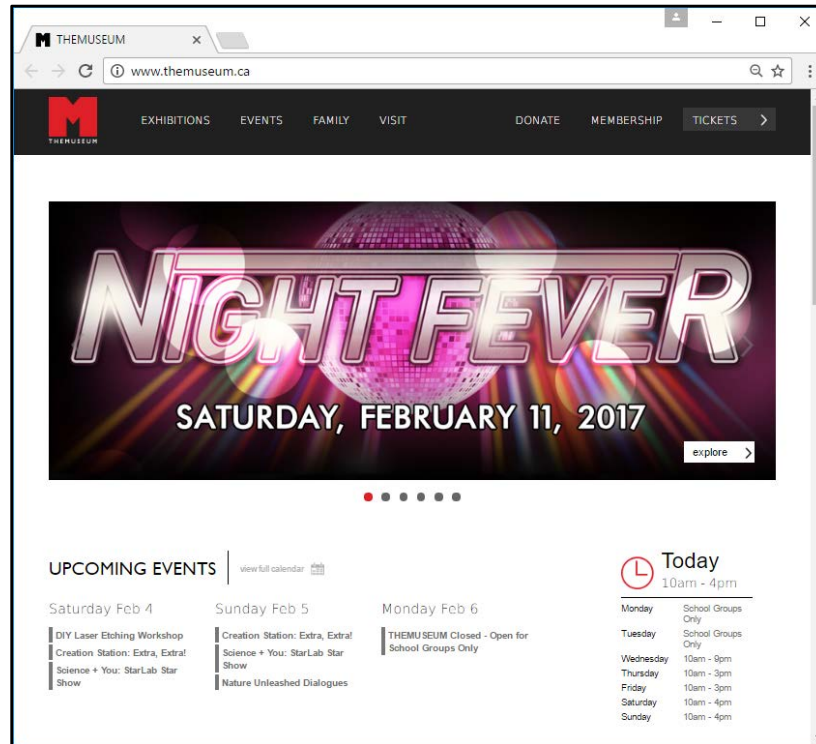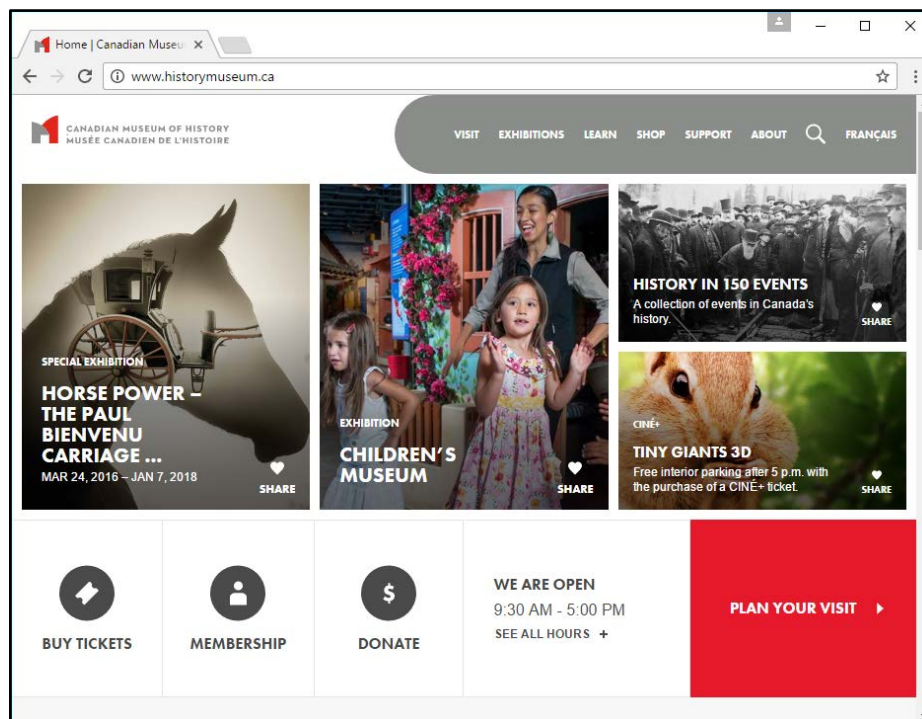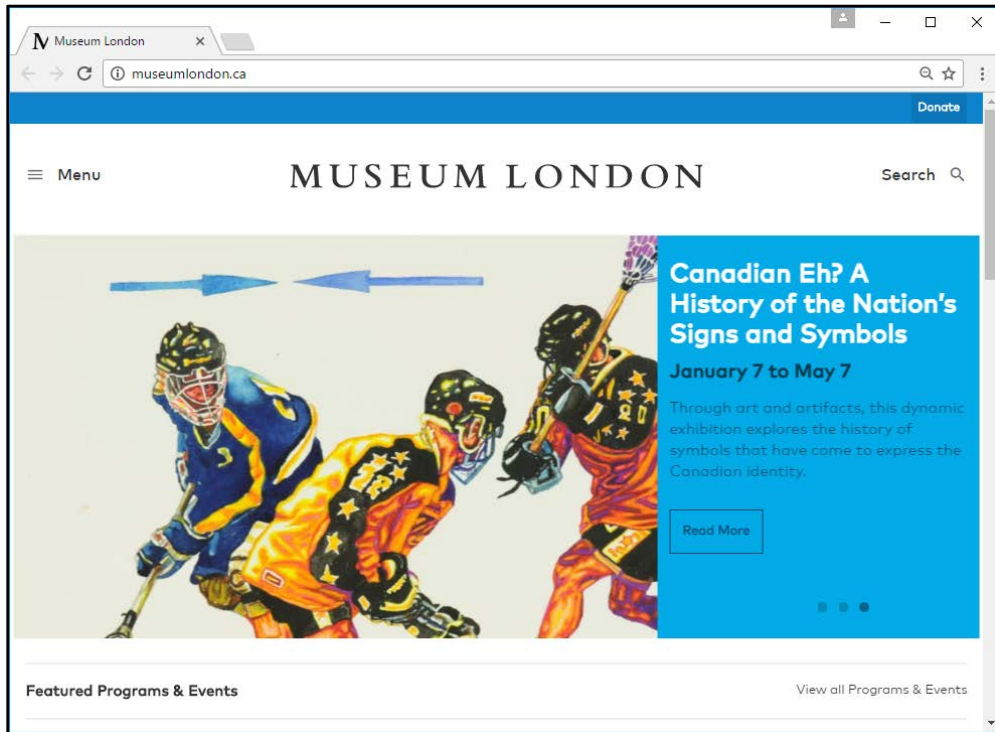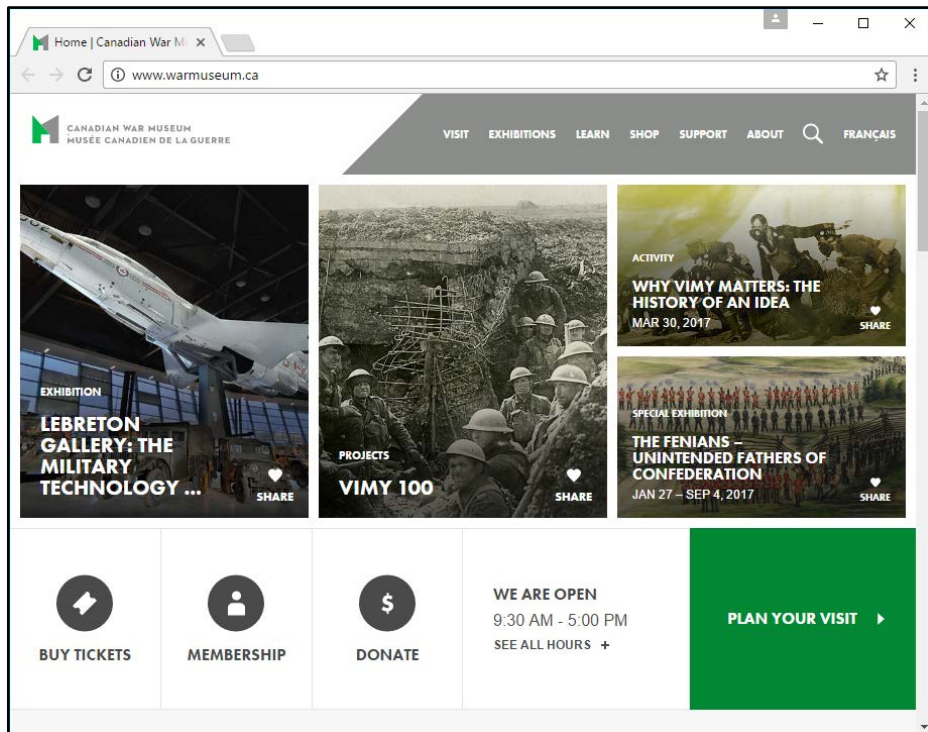
Figure 2: THEMUSEUM's site.

Figure 3: Canadian Museum of History's site.

Figure 4: Web site of Museum London.

Figure 5: Web site of the Canadian War Museum.

The Winnipeg Railway Museum has provided you with these notes regarding the above site designs:

- THEMUSEUM's site has a very clean design. The black menu and the white content area go well together and the choice of these colours immediately attracts the user to the graphical announcements that scroll at the centre of the page. The Winnipeg Railway museum particularly likes the ability to immediately communicate upcoming events to visitors of the site through the rolling graphics as well as the calendar. The hours of operation that appear in the bottom right is also something that is very useful; as the hours of operation are difficult to find on Winnipeg Railway Museum's current site. Having said all of this, the Winnipeg Railway Museum does not like that there appears no way for the user to search THEMUSEUM's site.

- The Web site of the Canadian Museum of History does not have as nice a navigation menu as THEMUSEUM, but does have a nice panel-based layout that is particularly easy to use for those that are viewing the site on tablet computers. The large buttons along the bottom make it easy for visitors to quickly purchase tickets, become a member of the museum, or make a donation. Lastly, the large red box that appears on the bottom right is also quite useful as it allows visitors to access a page with suggestions on how they may plan their visit to the museum – although the choice of bright red for this box may be too flashy for the Winnipeg Railway Museum.

- Although the Web site for Museum London is rather simplistic and inferior to the designs of THEMUSEUM and the Canadian Museum of History, what Winnipeg Railway Museum likes about this design is the centre placement of the logo – although they don't like the logo itself. They wonder: could their new logo be centred somehow in the designs of THEMUSEUM and the Canadian Museum of History?

- After seeing the design of the Canadian War Museum, Winnipeg Railway Museum managers are left wondering: Did the same firm design this site and the site of the Canadian Museum of History? They also like the green 'PLAN YOUR VISIT' button in this design in lieu of the red button that appears in the design of the Canadian Museum of History. However, they do not like the navigation menu here; they think it is dull and large and much prefer the look of THEMUSEUM's menu. They also observe a design trend that museums like to place their upcoming events immediately on the front page and use large, colourful graphics in order to attract users, and then immediately place buttons for users to buy tickets. They would like to follow this design pattern in order to hopefully increase sale tickets into their own museum once the new site in launched.

As for logos that they really like, the Winnipeg Railway Museum has provided you with the ones below from the Royal Ontario Museum, Vancouver Art Gallery, City of Moncton, Art Gallery of Greater Victoria, and West Edmonton Mall.

You are to use these design notes, along with the example designs, in order to create Web site and logo designs for the Winnipeg Railway Museum.

The Web site should have a navigation menu containing the exact items as appear on the current site. They would like to republish their content under the new design, so would like to keep the navigation structure on the new site. The site should also be used as part of your design within the site. The logo should clearly represent the museum and be influenced by the logo designs of the Royal Ontario Museum, Vancouver Art Gallery, Art Gallery of Greater Victoria, and West Edmonton Mall. The site should also contain a very obvious way for the user to search, a list of upcoming events, and the ability for the user to immediately see ways to purchase tickets and donate to the museum.

In addition to designing the home page, the museum would like to see your designs for the page that is used to purchase a ticket, and the page that displays a calendar of upcoming events.

For the payment page, the user is expected to input the standard information: their complete mailing address, including street, city, province, and postal code, billing address (same input fields as mailing address), credit or debit card number, their forename and surname, and email address. Note that the museum will email a ticket immediately upon purchase. You should also provide the user of the site the option to have a physical ticket mailed to them for an additional $5.00 – an option that should clearly be shown in the design of the payment page. In addition to the user input, the page will contain: the name of the event for the ticket being bought, a short event description, and the date and time of the event. The number of tickets that the user wishes to purchase for a particular event should also be an input field on the payment page.

For the calendar page, the user will be presented with the standard one-month grid calendar containing the name of the current month, the days, as well as for each day the events occurring at the museum. Along the top of the calendar page, somewhere, will be the option for the user to switch from grid view to list view. When in list view, in lieu of events shown in a boxed calendar, the user will now see them in on the page by vertically scrolling through the days.

Requirement	Point value
Logo has been created and is included on all four page designs	1
Logo includes both text ("Winnipeg Railway Museum" or "WRM")	1
Logo includes a graphical component	1.00
Logo relates to the theme of the Web site	0.50
Files have been submitted in the correct format – PSD, ID, XCF, or SVG for source files, and PNG or JPG for the resulting graphical files	0.50
Home page contains options to purchase tickets and make a donation	1
Promoted events on the home page include all required information, i.e. image, event name, very short description, and the date and time	1
Home page includes all menu items from old site	0.50
All pages includes a search	0.50
Payment page includes at least one heading and subheading within content area	0.50
Payment page includes the event name, short description, and date and time	1
Payment page includes all required inputs	1
Events page includes buttons for grid view and for list view	1
Grid view events page shows the current month in a heading	1
Grid view events page shows days in a boxed layout, with the days clearly labeled	1
List view events page shows the current month in a heading	1
List view events page shows the days in a stacked, vertical layout, with the days clearly labeled	1
Design shows a good balance of images and text	0.50
Whitespace has been used to improve the clarity of the design	0.50
Page designs are appealing to the defined target audience	0.50

Module B: Web Site Implementation

Introduction

The Winnipeg Railway Museum was pleased with the design that you submitted as part of the work in the first module. They would now like you to proceed with the design, with some changes, and implement it as a functional prototype.

Requirements

After reviewing your work, they really would like to see a boxed layout used on the home page. They noticed that two large museums, the Canadian Museum of History and the Canadian War Museum, use this boxed layout in order to promote events. Therefore, your first task is to implement a boxed design that matches the one seen in the Web site designs of the Canadian Museum of History and the Canadian War Museum. As in those designs, your design should contain two larger boxes, placed one beside the other, followed by two smaller boxes placed one on top the other. The boxes themselves should contain graphics and text describing four upcoming events at the museum.

Once the user clicks one of these boxes, they are taken to the payment page in order to purchase tickets for the selected event. The payment page should contain a Web form with fields as described in the previous module. Client side validation, using HTML or JavaScript, or both, is to be completed on all input fields. If any input errors exist, the user is to be clearly informed such that (s)he can make the necessary correction and proceed with the ticket purchase. You need not worry about the ticket purchase itself, as that is beyond the scope of this module.

In addition to this boxed layout on the home page, you are to place buttons underneath the boxes that allow the user to purchase tickets and make a donation to the museum. These graphical buttons are to be followed by one more box: one that allows the user to plan their visit by opening a page that provides some tips for first time visitors to the museum. Refer to the Canadian Museum of History and the Canadian War Museum designs.

If the user clicks the 'purchase tickets' button, they are sent to the calendar page. The calendar page, as described in the previous module, is to have two views: grid and list – with the default being grid. Events are to be displayed in both views. In the grid view, when a user clicks on an event title, an animated (simulated) windows pops up showing the complete event details. In the list view, however, in lieu of showing the complete event details in a (simulated) window, the list expands down to show the complete event details. Regardless of the view, the user is then able to click on a button to purchase tickets for the event, which in turn would open up the aforementioned payment page.

The design that you create is to be responsive to mobile devices. That is, the user should have the same experience viewing the site on a computer monitor as (s)he does viewing it on a smartphone screen.

The home page, as well as all other pages, would have a menu that matches the one seen in the design of THEMUSEUM's site: black background, white text, clean, modern, and also boxed. The menu itself, however, will contain the same items as shown on the old Winnipeg Railway Museum site.

In lieu of the logo appearing on the left (as it does in THEMUSEUM's design), your design should have the logo placed in the centre of the navigation menu. The desired effect will be that the logo appears to be placed over top of the menu itself. When the user moves their mouse over the logo, it should slightly appear larger, and when the user clicks on it, the home page should be loaded.

Although Winnipeg Railway Museum knows that they would like a search bar to appear on all pages, they are not quite sure how they would like it to appear. You are to make this design decision and include it as part of your design implementation. The search (textbox and button) however should always be present, and not be hidden behind a button.

Requirement	Point value
A boxed home page design is presented, similar to the provided screenshots	3
The navigation menu appears similar to the provided screenshots	2
A search area appears, containing a textbox and search button	2
Bottom of home page contains buttons to purchase tickets and make a donation, as well as a box to plan the user's visit to the museum	2
Design is reasonably responsive to computer monitor and smartphone devices	3
Payment page contains a Web form with all required input fields	2
Payment page contains client-side validation for all input fields	2
Logo appears over top of the menu, centred on the page	2
Logo increases in size when user hovers mouse over top	2
Simulated window pops up when user clicks on particular event in the grid view of the calendar page	2
Event details collapse down when user clicks on particular event in the list view of the calendar page	2

Module C: Web Development

Introduction
The museum unequivocally supports your work thus far and would like you to move forward in developing the rest of the site.

Requirements
As part of the final phase of the project, the museum would like you to implement an administrative area for the Web site. This administrative area is to allow the employees of the museum to log in (and then log out), create new events that are to be posted on the site, and view ticket sales for future or past events. After logging into the administrative area, the museum employee will see the following two menu items: events and tickets. How you wish to incorporate these two additional menu items into your current design is completely up to you, but it should be clear, in some way that the user is currently in the administrative area and not on the public site. However, do not spend too much time on redesign work, as the purpose of this module is on development work, not design.

On the administrative events page, the employee will be able to create new events and view past events. For brevity, you are not to implement the editing or deleting of existing events. Each event should have a unique identifier, name, description, and date and time of the event.

On the administrative tickets page, the employee will be able to view all tickets purchase for all events in a grid-like table. When the employee clicks on the title of a particular column, that column will be sorted in ascending order. The sorting is to be done on the client side and no requests to the server to be made after the ticket data was initially loaded. For example, if the employee clicks on the 'event' column, they will be presented will all sold tickets sorted by the event name.

In order to support this functionality, you must create a database. The database is to contain the following tables: *User* (to store information on employees that are able to log into the administrative area), *Event* (to store event information), and *Ticket* (to store ticket information). Note the relationship between the event and ticket tables: one event has many tickets, and one ticket is for one event. Design your database with care, taking into account as many normalization rules as possible.

The payment page should now have complete PHP server-side validation (in addition to the previous client-side validation). As was the case with the client-side validation, the validation written in PHP is to check for non-empty and correct input and clearly inform the user of any incorrect input. As a result of correctly inputting everything, the user will be shown an order summary page (which may either be a completely new page or coded as part of a single page) that includes the details on the event tickets purchased, order subtotal, tax amount, and total. Assume 10% for tax and take care in properly computing the subtotal, tax, and total amounts. Once the user confirms the order, by pressing a button, (s)he will be shown an order confirmation page (which may either be a completely new page or coded as part of a single page).

The home page is to display the next four events that the museum is hosting. Hint: in your database query, select the four records that have dates closest to the current date. These events are to be displayed in the boxes that you designed and implemented in the previous modules.

The calendar page is to display all events that the museum is hosting in the current month. Do not worry about navigating between months for now.

When the user clicks on a particular event, (s)he should be sent to the payment page for that event. In order to properly program this, ensure that the unique event identifier is read and then passed on to the payment page using a POST request to the Web server.

Requirement	Point value
Administrative log in area contains a Web form allowing employee to input username and password	3
Employee is able to log into administrative area using his or her credentials	4
the events and the tickets pages are clearly shown as menu items in the administrative area	3
Employee is able to create an event using a Web form in administrative area	4
Employee is able to view all created events via an accessible HTML table	4
Employee is able to view all purchased tickets via an accessible HTML table	3
Employee is able to sort tickets in ascending order by clicking on any one of the table columns	3
User database table contains required fields	3
Event database table contains required fields	3
Ticket database table contains required fields	3
Database is normalized and contains proper primary and foreign keys	3
Database properly encrypts user account passwords	3
SQL injection is preventable	3
Payment page has complete server-side input data validation	3
Order summary page shows complete order details, and correctly computes and displays thesubtotal, tax amount, and total amount	3
Order confirmation page shows complete order details	3
Home page displays the four next events at the museum	3
The events page displays all events in the current month	3
Requesting to process a payment for a particular event is done using a POST request	3