LiveCode Overview - DigHT 310

These are the learning objectives for understanding how to use LiveCode. If you don't understand something please ask. There is probably much more here than we will have time for during our overview sessions, but it can be used to guide you in learning LiveCode.

OBJECTIVES

To be proficient in LiveCode development you should:

LiveCode Overview and Environment
1. Understand what LiveCode is—an easy-to-learn rapid application development tool that is easy enough for beginners to use, yet sophisticated enough to allow experienced programmers to create professional applications.
2. Understand the LiveCode metaphor of stacks and cards, a mainstack being the primary project document and cards being various screen layouts.
3. Know how to create a new mainstack and new cards.
4. Be familiar with the main components of the LiveCode integrated development environment, or IDE; namely, the menu bar, the tools palette, the toolbar, the property inspector, and the application browser.
5. Be familiar with the main types of objects and their purposes: stacks, cards, buttons, fields, images and players.
        a. Common button styles—push button, radio, checkbox.
        b. Common field styles—text entry, label, list field.
6. Know how to create new control objects using either the tools palette or the main menu.
7. Know what the term 'object properties' means and how to set and change them using the property inspector.
8. Understand that every type of object has properties—both properties that are common to all objects and properties that are unique to that type of object.
9. Understand the concept of property inheritance—how "child" objects like buttons and fields take on the appearance of "parent" objects like cards and stacks. Understand the basic stack --> card --> control inheritance hierarchy.
10. Understand how to create groups of objects and why groups are useful.
        a. Groups allow you to associate several control objects that are related, so you can move them together and set common properties in one place.
        b. Groups can appear on more than one card at a time, and so allow for efficiencies in interface development.
11. Know what it means to place a group on a card, and know the difference between removing a group and deleting a group.

LiveCode Scripting Language and Object Scripting
1. Understand that LiveCode's scripting language terminology and syntax is designed to mimic English and so to ease the learning process.
2. Know what the message box is for and how to show and hide it.
3. Know how to run simple commands from the message box.
4. Be familiar with the following common commands: go, put, hide/show, enable/disable, move, wait. Students should realize that there are many other commands, but that they are relatively easy to learn as you need them because they observe the same syntax rules. (I.e., imperative verb followed by direct object.)
5. Understand that all objects in LiveCode have a script that allow the developer to determine the behavior of those objects.
6. Know how to open an object's script for editing.
7. Understand the concept of a message—an "announcement" that a certain event has occurred, and that a message can be used to trigger actions.
8. Be familiar with the following common messages: mouseUp, mouseDown, openCard.
9. Know how to "handle" a message by writing a message handler in the script of an object. Understand the on <message> . . . end <message> handler structure.
10. Know how to write a simple message handler using the basic messages and commands discussed.
11. Understand the concept of the message path—that a message is passed up from child to parent until the message is handled by a message handler.

12. Know how to refer to objects by name, number or id.
13. Know how to designate literal values—with double quotes.

LiveCode and Media
1. Understand that LiveCode excels in letting the developer quickly integrate various types of media, including graphics, images, audio, and video.
2. Understand how appropriate use of media can add visual interest and a professional appearance to your stack, as well as contributing to ease of use.
3. Know how to create vector graphics.
    a. Understand anti-aliasing.
4. Know how to import and display images.
    a. LiveCode recognizes JPEG, PNG, BMP, GIF formats natively.
    b. Imported vs. referenced images.
    c. Resize quality.
    d. Locking size and location.
5. Be familiar with LiveCode's simple paint tools.
6. Know how to import and play audio clips.
    a. LiveCode can directly play uncompressed AIFF, WAVE, and μ-Law audio formats.
    b. Play and play stop commands.
7. Know how to play other time-based media with the QuickTime player object.
8. Understand that to display or play back external media files the complete file path to the media file must be provided in some way, and that "hard-coded" file paths are dangerous because they almost always break the link to the file when the stack is moved to a new location or computer.
    a. Teach how to set the defaultFolder to the folder enclosing the stack; or,
    b. Teach the answer folder command to let the user locate the files for each session.

More on Scripting and Handling Text (if time)
1. Know how to import text into a text field.
2. Know what a variable is and how LiveCode creates and refers to variables.
3. Know some common constants in LiveCode scripting language: empty, return/cr, space, quote, true, false.
4. Know some common functions: the date, the time, the random, as examples of what a function is and how they are used in scripting.
5. Understand the concept of conditional statements and the LiveCode if-then-else structure.
    a. Understand basic comparison operators: is/=, is not/<>, >, <.
6. Understand the concept of looping and the basic LiveCode repeat statements.
    a. repeat n times
    b. repeat with x = n to m
    c. repeat for each <chunk> in <text string>

7. Know how to concatenate text with the & and && operators.
8. Understand the meaning of the following text units in LiveCode:
    - character
    - word
    - line
    - item
9. Know how to refer to "chunks" of text in scripting statements.
10. Understand how to use text functions like the length or the number.
11. Understand how to get information about which text is selected, particularly in conjunction with list style fields.
12. Understand how to enter debugging mode and how to step through scripts.
13. Understand how to use the variable watcher and the message watcher.

LiveCode and the Internet
1. Understand that LiveCode is just as adept at accessing internet-based media and text files as it is at accessing files on the local machine.
2. Understand how to construct a well-formed URL.
3. Know how to change the contents of an image or player object by setting the filename property to a valid URL.