

Topic 11: Programming Languages

Topic Description:

Programming Languages will introduce the student to some basic issues associated with program design and development. The focus of this unit is to establish an appreciation of the work being done by software.

Textbooks and Supplies:

A programming language; interactive development environment recommended.

Time to Complete: 2-4 weeks

Student Learning Objectives	Assessment Measures
<i>The student will be able to:</i>	
1. Code, test, and execute a program that corresponds to a set of specifications.	Lab activity
2. Convert a word problem into code using top-down design.	Written activity Lab activity
3. Select appropriate data types.	Written activity Lab activity
4. Write structured program code.	Lab activity
5. Draw a series of diagrams showing the scope and values of variables during execution of a simple program.	Written activity

Assessment Recommendations: An average of 60% from combined assessment measures is required to demonstrate proficiency in course material.	
Lab activities	50%
Written activities, including tests, quizzes, and written assignments	50%

Detailed Outline	
Focus	Sample Lab / Hands-on Activity
1. Terminology	Identify and define key terms associated with programming.
2. Representation of text inside the computer	Each student writes a sentence in binary and exchanges it with a neighbor. The neighbor translates the sentence into text. Students stand or sit to mime a secret word in binary. Flashlights can also be used to represent binary code.
3. Representation of numbers inside the computer, including the largest and smallest values which can be represented in each of several types	Numbers are placed into imaginary bytes in a grid, each imaginary byte having a unique address. (A spreadsheet can be used for this purpose.) Instructions are provided to add and subtract values by address. Some of the resulting numbers should be too large to store in the imaginary byte and will overflow.

Detailed Outline	
Focus	Sample Lab / Hands-on Activity
4. Data types: integer, floating point, character/string, and Boolean types and appropriate operations	Evaluate the results of mathematical and logical expressions using integer, floating point, and mixed arithmetic. Evaluate the results of expressions using relational and Boolean operators. Problems should require students to understand order of operations.
5. Program execution	Draw a flowchart showing the process from source to executable, including the return flow for syntax and semantic errors.
6. Programming design techniques	Students are given a word problem and state the input required, output to be produced, and formulas required. The program flow is diagrammed before the coding process begins.
7. Programming style	Distribute the written code for a program that has no comments, one-letter non-descriptive variable names, multiple statements on a line, etc. What does this program do? Have students enter and run the program to determine what it does and make necessary changes to employ good style.
8. Programming statements for output	Write a program that displays output.
9. Declaring and using constants and variables of simple types	Write a program that performs operations and generates output.
10. Programming statements for input	Write a program that accepts keyboard input, performs operations and displays the results.
11. Subprograms; scope; parameters for communication between program parts	Write a program that requires the same code to be executed several times and break it up into units. For example: Distribute the words to a favorite song that contains at least two verses and a chorus. Write one subroutine for each verse and the chorus. Call the subroutines in order. Modify the words of the song with parameters.
12. Structured programming: sequence, selection, repetition	Use each structure in a program as it is introduced.
13. Array variables and/or other aggregate data type	Write a program that utilizes an array or other aggregate data type such as a list, set, etc., depending upon the language employed.
14. Object-oriented programming	Discuss advantages of object-oriented programming. Write a simple program using a real-life object (e.g., Rover is an object of type <i>dog</i> ; properties: <i>color</i> and <i>breed</i> ; methods: <i>speak</i> and <i>beg</i>).
15. Program results	Predict the output, given a program and sample input.
16. Comparing high-level languages	Present pieces of code in various languages that accomplish similar tasks (e.g., loop, conditional).

3/19
6th Grade gifted

Music "Video"

Martine Thornton

13 Students

also use Pictool

You are to produce a slide presentation for a musical selection of your choice.

Objectives

This assignment will introduce the basic concept of the storyboard. You will learn basic camera shots and angles as well as how they can be manipulated to achieve certain effects.

Requirements

1. You will receive a packet to use for your video storyboard.
2. You will choose a musical selection for your project. The music must be appropriate. (No violence, "partying", explicit relations or anything else deemed inappropriate by Mrs. Thornton)
3. You must bring in a CD or cassette tape of your song as well as a copy of the lyrics.
4. After receiving the "OK" for your music, you will plan your storyboard.
5. Once your storyboard is complete and checked, you will be given a camera to use on your shoot.
6. You are to shoot your pictures and hand in your camera to be developed.
7. After processing, you will put your music "video" show together in a Power Point format and present your final production to the class.

Grading

You will receive one grade for your production based on the rubric.

Music "Video" Rubric

The chosen music was appropriate and worked well as a "video".	1	2	3	4	5
The producer's choices of shots were appropriate for the music and were entertaining.	1	2	3	4	5
The producer's choices of shots were consistent with the feeling of the music.	1	2	3	4	5
The shots were framed well.	1	2	3	4	5
The shots were timed well with the music.	1	2	3	4	5
The presentation was effective overall.	1	2	3	4	5
The producer followed all rules and deadlines were met.	1	2	3	4	5
The producer followed the storyboard accurately. (x 3)	1	2	3	4	5

Total _____

- 5 = Always
- 4 = Most of the Time
- 3 = Sometimes
- 2 = Occasionally
- 1 = Seldom

MUSIC VIDEO

VIDEO STEPS

1. Select a song
2. Find/write the lyrics
3. Determine the natural breaks in the lyrics/music
4. Create a storyboard
5. Plan the picture taking session
6. Take the photographs
7. Bring cameras to me to be processed
8. Have shots checked by Mrs. Thornton
9. Create power point "music video"
10. Practice advancing power point to music
11. Perform "music video" for the class

20 students
C. 10-11

Mrs. Green Liddy

Goal Mapping

You are to create a story of your life speaking in the third person. You are to tell your story as if it is 15 years from now and you are looking back in the past. Tell a story about the goals that you achieved in education, relationships, jobs and hobbies. With each goal that you have met, you must also mention who helped to support you in order to reach your goals.

Be creative in writing your story.

You will be expected to record your story using Voice Threads. We will have time to learn how to do this.

*** You must also include at least 7 images that relate to your story.

Goal Mapping Rubric

- 5 goals for education_____ (5pts)
- 5 goals for relationships_____ (5pts)
- 5 goals for job/s_____ (5pts)
- 5 goals for hobbies_____ (5pts)
- Identifying your support for each goal_____ (10pts)
- Recognize what you had to do to reach your goals_____ (15pts)
- Setting reasonable and achievable goals_____ (10pts)
- Creativity in presentation of goals_____ (25pts)
- Voice Thread_____ (20pts)

Total points_____/100