

What is a good technique or exercise when learning a new language?

[closed]

Asked 16 years, 2 months ago Modified 12 years, 7 months ago

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5



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Closed 12 years ago.

When you are learning a new language, what is there a particularly good/effective exercise to help get the hang of it? And why?

EDIT: Preferably looking for things that are more complicated than 'Hello World'.

language-agnostic

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edited Apr 30, 2012 at 12:07

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Mat

207k ● 41 ● 400 ● 415

asked Sep 26, 2008 at 12:48



The.Anti.9

44.6k ● 49 ● 126 ● 162

all good suggestions... but i think it depends on the language you are trying to learn! – [c0deNinja](#) Feb 20, 2012 at 23:19

18 Answers

Sorted by:

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10



I usually do the following (in the order presented):

1. Print a pyramid with height provided by the user (checks basic I/O, conditionals and loops)
2. Write a class hierarchy with polymorphism etc... (checks OO concepts)
3. Convert decimals to roman numerals (checks enums and basic data structures)
4. Write a linkedlist implementation (checks memory allocation/deallocation)
5. Write clones of JUnit and JMock (checks reflection/metaprogramming)
6. Write a console based chat system (checks basic networking)
7. Modify (6) to support group chat via multicasting (checks advanced networking)

8. Write a GUI for (7) (checks GUI library)

After that its on to a real project...

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answered Sep 26, 2008 at 14:26

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Garth Gilmour

11.2k ● 5 ● 28 ● 36



8



other than hello world, I try to port one of the existing programs to the new language. this will challenge me to learn some good old techniques in the new language and help me build a new library of classes or helpers..

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answered Sep 26, 2008 at 12:51

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Gulzar Nazim

52.2k ● 26 ● 130 ● 170



Absolutely. I do the same and find it the best way to learn. It also indirectly teaches me more about the language i originally wrote it in, depending on the new language (better technique, etc) – [mattlant](#) Sep 26, 2008 at 14:31



6



Larry O'Brien had a great series of blogs titled '15 Exercises to know A programming Language' [Part 1](#) [Part 2](#) [Part 3](#)

See Larry's Blog for the details.



Part 1. Calculations



1. Write a program that takes as its first argument one of the words 'sum,' 'product,' 'mean,' or 'sqrt' and for further arguments a series of numbers. The program applies the appropriate function to the series.
2. Write a program that calculates a Haar wavelet on an array of numbers. .
3. Write a program that takes as its arguments a the name of a bitmapped image. Apply the Haar wavelet to the pixel values. Save the results to a file.
4. Using the outputs of the previous exercise file, write a GUI program that reconstitutes the original bitmap (N.B.: The Haar wavelet is lossless).
5. Write a GUI program that deals with bitmaps images

Part 2. Data Structures

6. Write a class (or module or what-have-you: please map OOP terminology into whatever paradigm appropriate) that only stores objects of the same type as the first object placed in it and raises an exception if a non-compatible type is added.
7. Using the language's idioms, implement a tree-based datastructure (splay, AVL, or red-black).
8. Create a new type that uses a custom comparator (i.e., overrides "Equals"). Place more of these objects than can fit in memory into the datastructure created above as well as into standard libraries, put more objects into it than can fit in memory. Compare

performance of the standard libraries with your own implementation.

9. Implement an iterator for your datastructure. Consider multithreading issues.
10. Write a multithreaded application that uses your data structure, comparable types, and iterators to implement the type-specific storage functionality as described in Exercise 6. How do you deal with concurrent inserts and traversals?

Part 3. Libraries

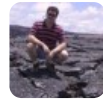
11. Write a program that outputs the current date and time to a Web page as a reversed ISO 8601-formatted value (i.e.: "2006-06-16T13:15:30Z" becomes "Z03:51:31T61-60-6002"). Create an XML interface (either POX or WS-*) to the same.
12. Write a client-side program that can both scrape the above Web page and the XML return and redisplay the date in a different format.
13. Write a daemon program that monitors an email account. When a strongly-encoded email arrives that decrypts to a valid ISO 8601 time, the program sets the system time to that value.
14. Write a program that connects to your mail client, performs a statistical analysis of its contents (see A Plan for Spam) and stores the results in a database.
15. Using previous Exercise, write a spam filter, including moving messages within your mail client

If you can do all these things in 2 languages, I'm sure google has a job for you

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answered Sep 26, 2008 at 14:12

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[Benoit](#)

38.9k ● 24 ● 85 ● 117

Seems a little extreme and probably a waste of time for most people. – [bruceatk](#) Sep 28, 2008 at 22:07

I don't disagree, but at the end, you will **know** then language... – [Benoit](#) Sep 29, 2008 at 0:20



'hello world!'

4



I really do think this a good place to start. Its basic and only takes a few seconds but you make sure your compiler is running and you have everything in place.

Once you have that done you can keep going. Add a variable, print to database, print to file. Make sure you know how to leave comments. This could all take a mater of 5 minutes. But its important stuff.



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edited Sep 26, 2008 at 13:05

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[Patcouch22](#)

912 ● 3 ● 11 ● 29



Connect to data somehow, whether it be a database, file or other...

2

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answered Sep 26, 2008 at 12:51



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[Galwegian](#)

42.2k ● 16 ● 113 ● 158



Red-Black tree.

2

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answered Sep 26, 2008 at 12:51



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[Ben Hoffstein](#)

103k ● 8 ● 106 ● 121



en.wikipedia.org/wiki/Red-black_tree – [Ben Hoffstein](#) Sep 26, 2008 at 12:53

Rolling On The Floor Laughing. %) – [rafek](#) Sep 26, 2008 at 13:18



I usually don't do very well with it unless I have a "real" project to apply it to. Even made up ones get boring fast. In fact, I find it helpful to throw yourself in the middle of a bigger project and make small changes to something that already works.

2



YMMV



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answered Sep 26, 2008 at 12:56



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Jeff MacDonald

604 ● 4 ● 2



2

My equivalent of a hello world is to do the following:

1. Retrieve multiple inputs (ie, parms from command line, text boxes on a gui)
2. Manipulate that input (ie, do math on numbers and manipulate text)
3. On a gui use a list box.
4. read and write files.



I feel after doing the above I get a good feel for the language and a good introduction to the IDE and how easy (or really how difficult) it is to work with the language and the environment it runs in.

After that if I want to go further I will use the language in a real project that I need to do (probably a utility of some kind).

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answered Sep 26, 2008 at 13:16

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bruceatk

5,138 ● 2 ● 27 ● 36



1

Personally I like to make a simple echo server and client to get the hang of network programming with that language.



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answered Sep 26, 2008 at 12:49



[The.Anti.9](#)

44.6k ● 49 ● 126 ● 162



1

Ray tracer.

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answered Sep 26, 2008 at 12:51



[TraumaPony](#)

10.8k ● 13 ● 57 ● 75

I was about to say the same, until I saw your answer. Either a ray tracer, or the Mandelbrot set. I verified my own programming language with a mandelbrot set, and wrote a C++ compile time ray tracer. – [Sebastian Mach](#) Mar 26, 2012 at 12:06



1

I like to learn a new language by doing a "real" task (for "personal" use)

My first java program was a client for an online multiplayer game (that I then released into public domain)



My first vb.net program was a front-end for my digital video recorder



My first VHDL "program" was a 64x32 led array controller

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answered Sep 26, 2008 at 12:52

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Axeman

357 ● 1 ● 7



Often I'll implement the [k-means clustering algorithm](#).

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answered Sep 26, 2008 at 12:58

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Corey

14.3k ● 7 ● 39 ● 35



Drag-and-drop image gallery.

0

When I was cutting my teeth on Win32 and MFC, this was one of my first projects. Pretty quickly I ported all my code into ActiveX controls. Then I rewrote the thing in Java. For kicks, I rewrote it again in pure Javascript.



When I broke into .Net, I rewrote the thing again in C#. Last but not least, I used it as an exercise for learning Objective-C and UIKit.



Why? It's a visually appealing toy, for one thing. It's nice to get instant gratification from your code, I think, and

working with images is one of the most gratifying things I can think of.

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answered Sep 26, 2008 at 13:25

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David Hill

4,142 ● 2 ● 25 ● 20



Console based Tetris

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answered Sep 26, 2008 at 15:36

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ripto

419 ● 3 ● 15



I like games for learning programming because the business rules are carefully delineated. The first three programs I write in a new language are Ro-Sham-Bo, Blackjack, and Video Poker.

0



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answered Sep 26, 2008 at 16:02

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Yes - that Jake.

17.1k ● 15 ● 72 ● 99



Pick a task(s) that you already understand. That way you limit the amount of "new stuff" you need to assimilate.

0



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answered Sep 26, 2008 at 16:02



daveteske



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I think, for me, learning by porting existing code (for example, from another platform) is always a challenge and fun. just simple demos, boardgames, etc.



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answered Aug 7, 2010 at 17:18



bmosley

11 ● 2



0

Mandelbrot set.

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answered Mar 26, 2012 at 12:06



Sebastian Mach

39.1k ● 8 ● 96 ● 130

