

Python Programming

Course Code: INT 213

Programming ..??



Algorithms v/s programming

Algorithm: how to systematically perform a task

Write down as a sequence of steps

“Recipe”, or program

Programming language : describes the steps

What is a step? Degrees of detail

“Arrange the chairs” vs “Make 8 rows with 10 chairs in each row”

Which Programming Language ??

How to Pick Your First Programming Language Based on the Life You Want



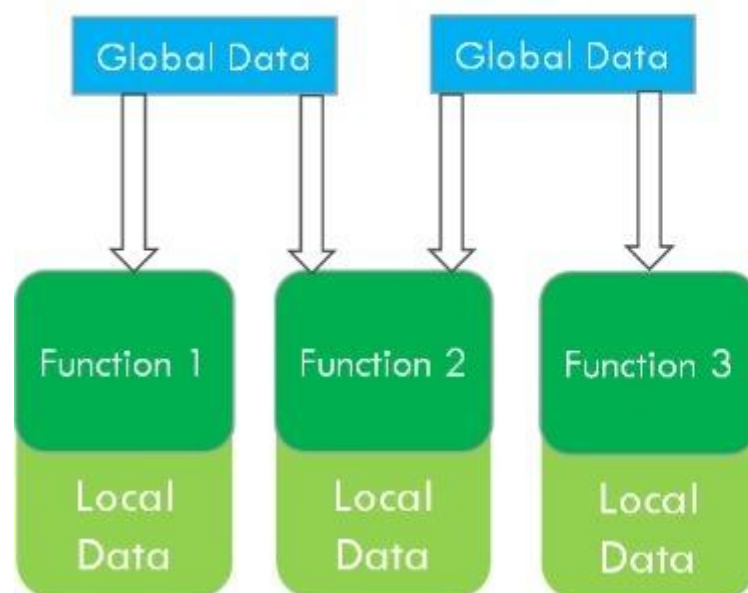


python

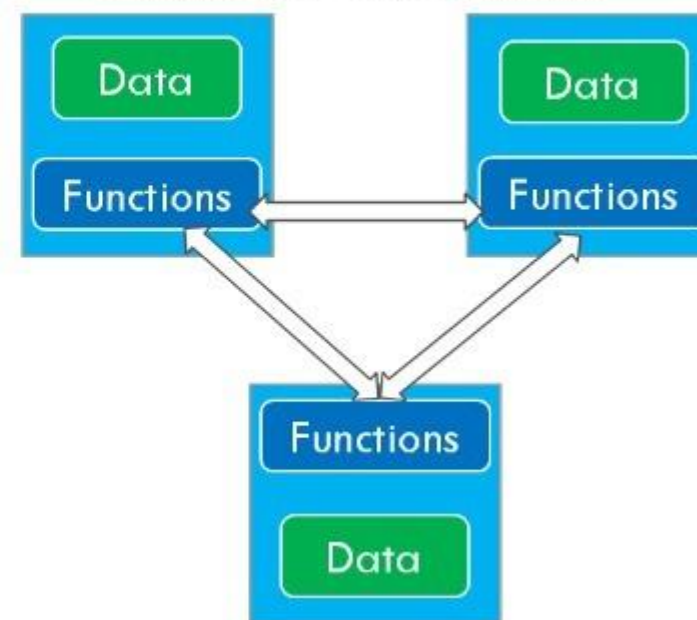
What is Python?

- Python is an open source, object-oriented, high-level powerful programming language.
- Developed by Guido van Rossum in the early 1989.
“Monty **Python's** Flying Circus”, a BBC comedy series from the 1970s.
- Python runs on many Unix variants, on the Mac, and on Windows 2000 and later.

Procedural Oriented Programming

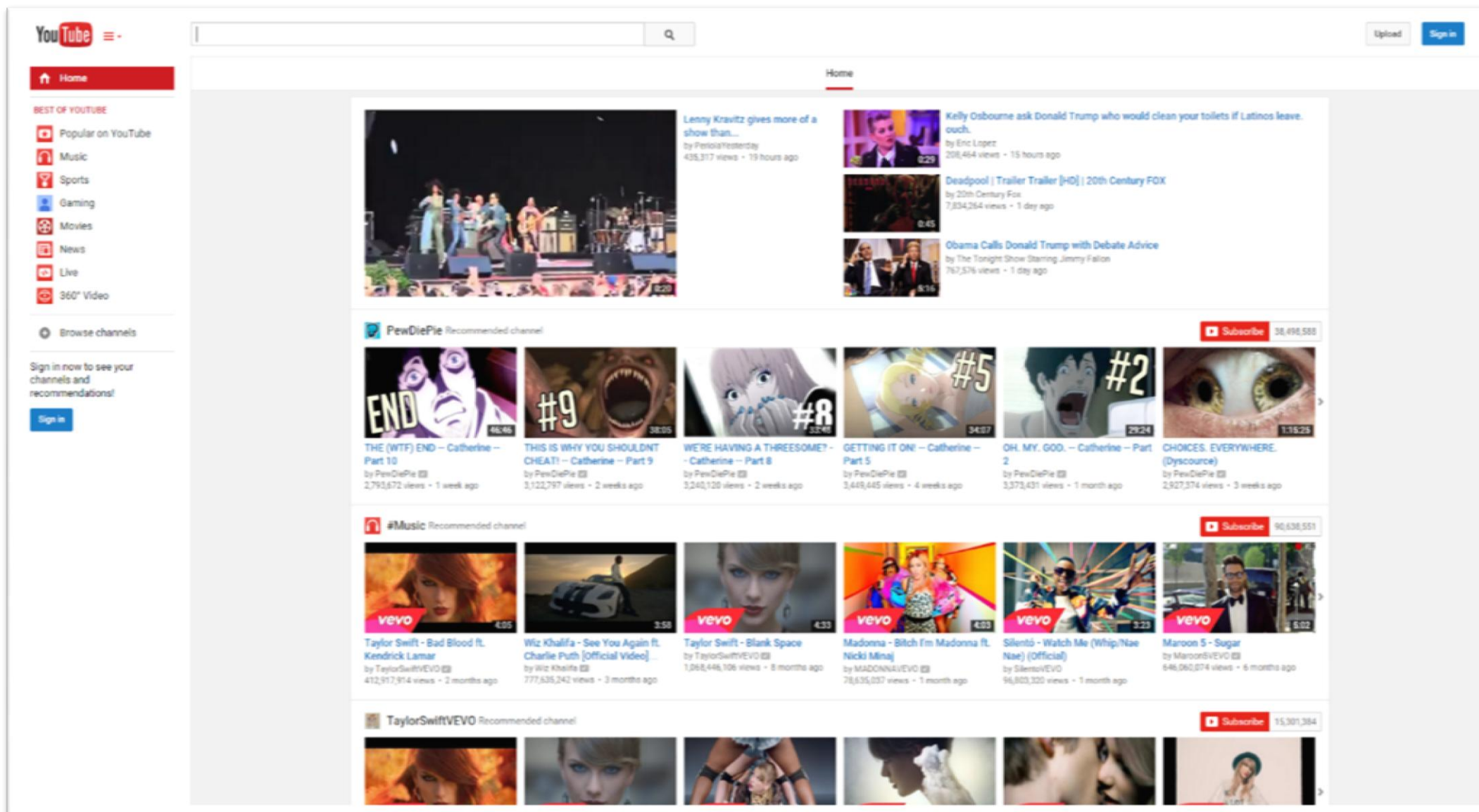


Object Oriented Programming

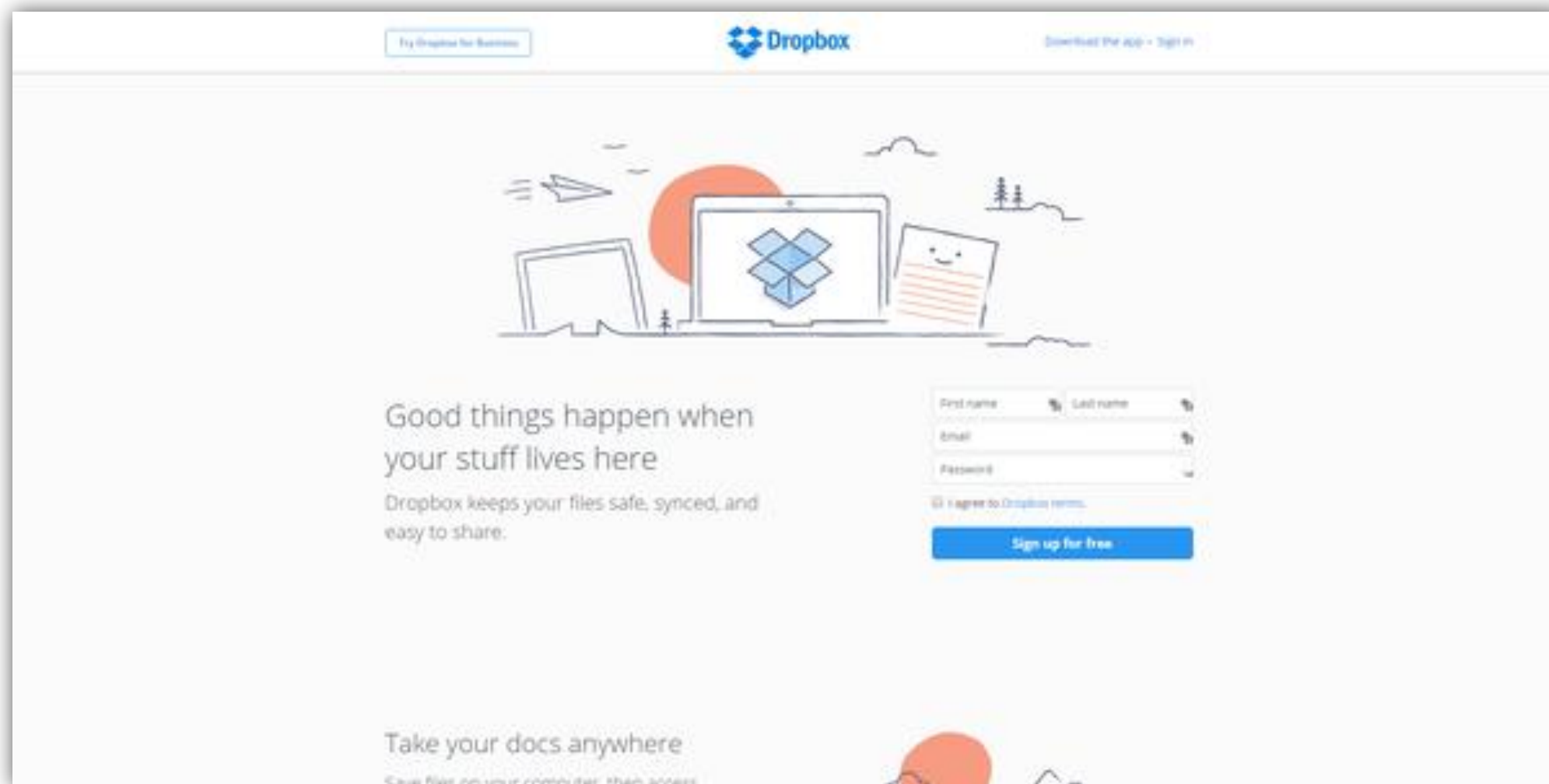


WHY?

YOUTUBE



DROP BOX

The image shows the Dropbox homepage. At the top, there's a navigation bar with a "Try Dropbox for Business" button on the left, the "Dropbox" logo in the center, and "Download the app" and "Sign in" links on the right. Below the navigation bar is a large illustration featuring a laptop with the Dropbox logo on its screen, a document with a smiley face, a paper airplane, and a large orange sun in a landscape with trees and clouds. The main heading reads "Good things happen when your stuff lives here". Below this, a sub-headline states "Dropbox keeps your files safe, synced, and easy to share." To the right of the text is a sign-up form with fields for "First name", "Last name", "Email", and "Password", each with a small eye icon for toggling visibility. Below the form is a checkbox labeled "I agree to Dropbox terms." and a prominent blue "Sign up for free" button. At the bottom of the page, the text "Take your docs anywhere" is visible, followed by the partially visible sentence "Save files on your computer, then access".

SURVEY MONKEY



The screenshot shows the SurveyMonkey homepage. At the top, the SurveyMonkey logo is on the left, and 'Sign in' and 'Help' links are on the right. Below the logo is a navigation bar with links: Home, How It Works, Examples, Survey Services, and Plans & Pricing. The main hero section has a green background with the text 'Create Surveys, Get Answers' in white. Below this text are two buttons: 'Pre Sign Up' (yellow) and 'Sign Up FREE' (grey). A line of text below the buttons reads: 'The basics are always free. Upgrade for more powerful features.' Below the hero section are three feature cards. The first card is titled 'Survey your target market' and mentions 'SurveyMonkey Audience'. The second card is titled 'Want more power and multiple users?' and mentions 'SurveyMonkey Enterprise'. The third card is titled 'Give your results more context' and mentions 'SurveyMonkey Benchmarks'. Each card has a 'Learn More' button. At the bottom of the page is a grey bar with five icons and labels: Customer Satisfaction, Market Research, Events, Education, and Human Resources.

SurveyMonkey® Sign in Help

Home How It Works Examples Survey Services Plans & Pricing

Create Surveys, Get Answers

Pre Sign Up Sign Up FREE

The basics are always free. Upgrade for more powerful features.



Survey your target market

SurveyMonkey Audience has millions of people ready to take your surveys.


Learn More



Want more power and multiple users?

Get our most powerful features and make smarter decisions with SurveyMonkey Enterprise.

Learn More



Give your results more context

Compare your survey data to organizations like yours with SurveyMonkey Benchmarks.

Learn More



Customer Satisfaction



Market Research



Events



Education

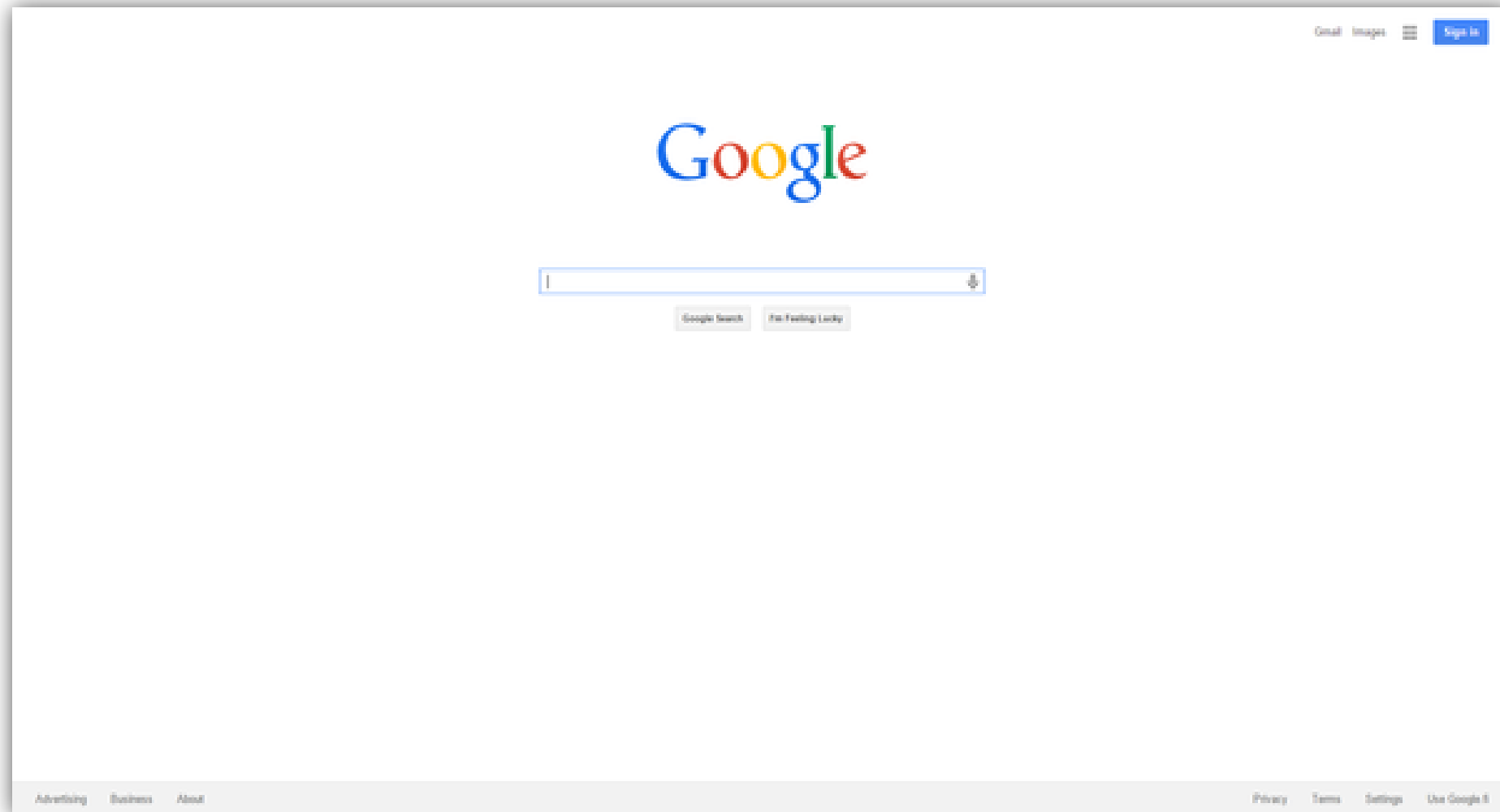


Human Resources

GOOGLE



L
P
U



Which is a better pet: a cat or a dog? Why?



Upvoted by Erika Wiggins, I trained all of my dogs to Canine Good Companion standards.

[illegible]

Dog's Diary

8:00 am - Dog food! My favorite thing! 9:30 am - A car ride! My favorite thing! 9:40 am - A walk in the park! My favorite thing!... (more)

Upvote 567 Downvote Comments 19+ Share 38 ...

Personal Finance Question asked • 29 Jul

Where can you get a small loan if you have bad credit?

1 Answer

Write Answer Pass Follow 3 Downvote

Academia Answer written • Tue

Are unfunded PhD admits a sign of polite rejection?



Jason has 60+ answers in Higher Education.

Someone just asked me to answer, but [Jordan Boyd-Graber](#) already nailed this one several months ago. I will add one other possibility: They don't have the funding *yet* but are hoping that it will ... (more)

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Way too long URL:

<https://docs.google.com/document/d/1jNhVFvkHgAr-7hEXts80TwolTsdDukhjoG3wCyciO8/edit>

<http://bit.ly/mixedplate18-19>

<http://tinyurl.com/mixedplate18-19>

<http://goo.gl/EF9xS6>

Shortened URL!

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1 38448

What tasty food would be distusting if eaten over rice? (self,AskReddit)

submitted 8 months ago * by DO_U_EVN_SPAGHETTI to /r/AskReddit

7857 comments share

↑
↓

2 38159

I participated in one of the biggest Magic: the Gathering tournaments of all time this weekend. In an effort to document it, I posed for pictures near people with exposed asscracks. I present to you Grand Prix Richmond Crackstyle. (imgur.com)

submitted 1 year ago by OB1FBM to /r/funny

6657 comments share

↑
↓

3 33053

Waterboarding at Guantanamo Bay sounds super rad if you don't know what either of those things are. /r/all (self,Showerthoughts)

submitted 6 months ago by jgam7 to /r/Showerthoughts

890 comments share

↑
↓

4 29467

This is Carter. He knocked on my door to ask if he could have a banana then left. (imgur.com)

submitted 1 year ago by Theone211 to /r/funny

3004 comments share

↑
↓

5 22823

[Text] Soon I will be gone forever, but that's okay as long as someone reads this (self,GetMotivated)

submitted 5 months ago by mylasttie to /r/GetMotivated

4763 comments share

↑
↓

6 21878

test post please ignore (self,pics)

submitted 6 years ago by qgyh2 to /r/pics

2208 comments share

↑
↓

7 21309

The Bus Knight (i,imgur.com)

submitted 3 years ago by Robert_Houdin to /r/funny

1440 comments share

↑
↓

8 18798

I live in the same valley as Adam West. I decided to look him up in the phone book today. (imgur.com)

submitted 2 years ago by slapshotten11 to /r/funny

974 comments share

↑
↓

9 17445

I've spent the past two years shooting drone aerials around the world. Here are 38 images which would be totally illegal today. (imgur.com)

submitted 4 months ago by mossikan to /r/pics

2020 comments share

↑
↓

10 17370

This guy is a reporter on Fox 2 here in Detroit. His name is Charlie LeDuff. He is fucking awesome. (youtube.com)

submitted 2 years ago by LowPEZ to /r/videos

1048 comments share

↑
↓

11 16861

This animated short about a lazy guy in outer space is pretty hilarious. (vimeo.com)

submitted 1 year ago by medabeR to /r/videos

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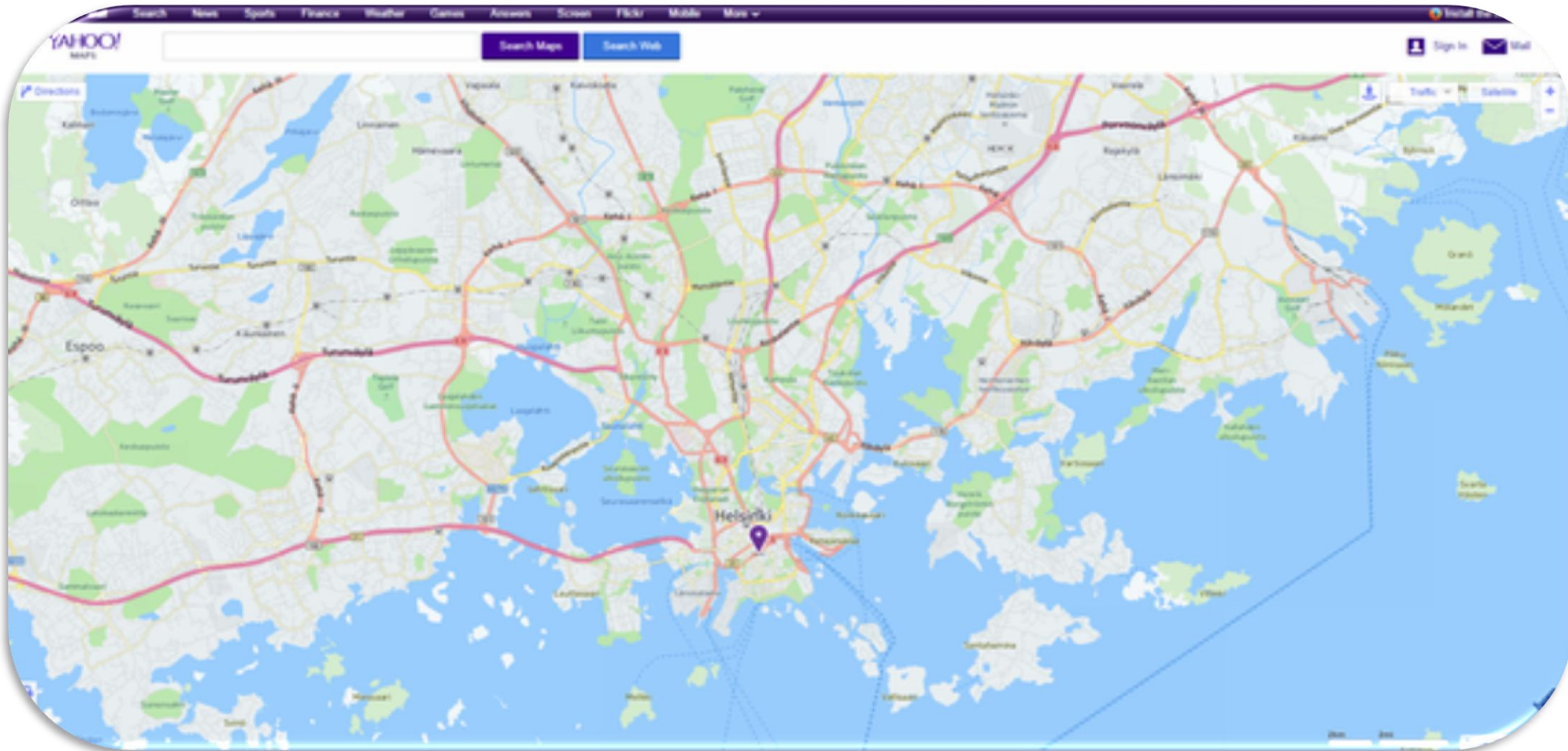
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YAHOO MAPS



Your Future!!!

Who uses Python



Instagram

Google

Pinterest



Let's Find Out!!

Write a Program using any language you know to print “HELLO WORLD”.

Python Is Easy to Use



- **C++ Program :**

```
#include <iostream><br>
```

```
    int main()
```

```
{
```

```
    cout << "Hello World" << endl;
```

```
    return 0;
```

```
}
```

C Program

```
#include <stdio.h>
```

```
int main(int argc, char ** argv)
```

```
{
```

```
    printf("Hello, World!\n");
```

```
}
```

Java Program :

```
public class Hello
{
    public static void main(String argv[])
    {
        System.out.println("Hello, World!");
    }
}
```

Python Program :

- `print ("Hello World")`



COMPARISON WITH JAVA

- Python programs are typically 3-5 times shorter than equivalent Java programs.
- Python programs are generally expected to run slower than Java programs.
- Java, on the other hand, can perform an efficient integer or floating point addition, but requires variable declarations for a and b.

COMPARISON WITH C++

- Python code is often 5-10 times shorter than equivalent C++ code.
- Python uses algorithmic approach unlike C++.
- Python is an interpretable language whereas C++ is a compiled language.

Interpreters vs. Compilers

CONTINUUM™
ANALYTICS

Compiled Language	Interpreted Language
Must be translated from source code to machine code before execution	Can be executed line-by-line immediately and interactively
Application can be distributed standalone, without the compiler.	Application must be distributed with the interpreter.
Executes much faster	Executes more slowly
Examples: C, C++, FORTRAN	Examples: Python

SALIENT FEATURES

- **Simple-** Python is a simple language. Reading a good Python program feels almost like reading English. It allows you to concentrate on the solution to the problem rather than the syntax i.e. the language itself.
- **Easy to Learn-** Python is extremely easy to get started with. Python has an extraordinarily simple syntax.

- **Open source** : Python is publicly available open source software, any one can use source code that doesn't cost anything.
- **Portable** :
High level languages are portable, which means they are able to run across all major hardware and software platforms with few or no change in source code. Python is portable and can be used on Linux, Windows, Macintosh, Solaris, FreeBSD, OS/2, Amiga, AROS, AS/400 and many more.
- **Object-Oriented** : Python is a full-featured object-oriented programming language, with features such as classes, inheritance, objects, and overloading.

- **Python is Interactive :**

Python has an interactive console where you get a Python prompt (command line) and interact with the interpreter directly to write and test your programs. This is useful for mathematical programming.

- **Interpreted :** Python programs are interpreted, takes source code as input, and then compiles (to portable byte-code) each statement and executes it immediately. No need to compiling or linking

- **Extendable** : Python is often referred to as a “glue” language, meaning that it is capable to work in mixed-language environment. The Python interpreter is easily extended and can add a new built-in function or modules written in C/C++/Java code.
- **Libraries** : Databases, web services, networking, numerical packages, graphical user interfaces, 3D graphics, others.
- **Supports** :Support from online Python community

VERSIONS OF PYTHON

- Python 1.0 - January 1994
 - Python 1.5 - December 31, 1997
 - Python 1.6 - September 5, 2000
- Python 2.0 - October 16, 2000
 - Python 2.1 - April 17, 2001
 - Python 2.2 - December 21, 2001
 - Python 2.3 - July 29, 2003
 - Python 2.4 - November 30, 2004
 - Python 2.5 - September 19, 2006
 - Python 2.6 - October 1, 2008
 - Python 2.7 - July 3, 2010

VERSIONS OF PYTHON

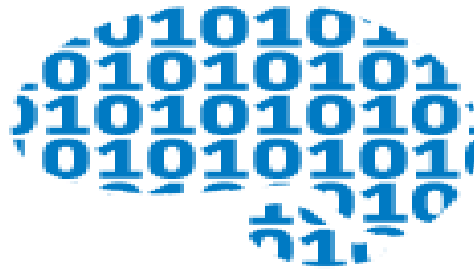
- Python 3.0 - December 3, 2008
 - Python 3.1 - June 27, 2009
 - Python 3.2 - February 20, 2011
 - Python 3.3 - September 29, 2012
 - Python 3.4 - March 16, 2014
 - Python 3.5 - September 13, 2015

DOWNLOADING PYTHON



<https://www.anaconda.com/products/individual>

Competitive Programming is a sport. Its like Olympics of the programming.



**COMPETITIVE
PROGRAMMING**

WHY?

- **Makes you a desirable candidate to major companies:** Participation in the ACM International Collegiate Programming Contest (ACM ICPC) is a great opportunity to be seen by Apple, Facebook, Google, IBM and many other authorities in the IT sphere.
- **Makes you faster and more focused:** In the competition, you must solve problems in stressful situations and do it up against a deadline or you will lose. Taking part in competitive programming teaches you how to be more focused on the task and not only complete it quickly, but accurately. These skills are highly beneficial for any job, not just in coding.

Companies

amazon

Google

Quora



IBM



And many more.....

Challenges

- **ACM – ICPC**
- **Google Code Jam**
- **Topcoder Open**
- **Google foo bar challenge**
- **Facebook Hacker cup**

