

E-COMMERCE - project course

1DL350, 10.0 credits

Spring 2013

Agenda for lectures, assignments and
e-commerce project

<http://www.it.uu.se/edu/course/homepage/ehandelprojekt/vt13/>

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Personell (electronic commerce project)

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Preliminary course contents

- Course introduction
 - agenda
 - overview of e-commerce technology
- Lectures on suitable topics from the the e-commerce area and web technology or other related topics
 - by me and assistants
- Student presentations
- Assignment
 - introducing technology for project (NetBeans IDE, web server (Apache), database (MySQL), server-side scripting (PHP), client-side scripting (Javascript), etc.)
 - deployment of web application (can be set up in project room in department)
- Group project (forming groups, developing business model, specification, design, development, testing, deployment)
 - i.e. to develop a multi-tiered e-commerce web application
 - project documentation, reporting and demonstration
- Project examination - grades U, 3, 4 & 5.

Homework

- Prepare for your project by:
 - Choosing a group and emailing the names, ssn, emails and skills to the assistant together with info on initial project leader
 - If you cannot find a group send your personal info, listed above, to assistant to get help forming a group
 - Discuss possible ideas for your project. Browsing the web might get you some ideas.
 - Discuss possible business idea in terms of how to earn money, possible advantages/disadvantages with your idea
 - Go to assignment seminar
 - Do assignment
 - Go to project seminar
 - You are ready for project

Resources

- Course web site:
 - Main course page
 - Assignment page
 - Project page
 - You'll also find
 - links to software required for the assignment
 - links to related material and interesting articles
 - Lecture notes
 - will be made available on the course web site
- Web resources (tools, tutorials, example code, etc)
- Literature
 - Online material on the course web page
 - A book that introduces web technology: Ince (2002) Developing distributed and e-commerce applications, Addison-Wesley, 0-201-73046-4
 - a good overview of web-based systems (not just Java-based), but light on technology

Your E-commerce project

- Develop an e-commerce web application of your choice
- Suggested tools:
 - NetBeans IDE, MySQL, Apache, PHP, Javascript
 - ... or possibly choose your own combination
- Important!!!
 - Academic honesty
 - Personal contribution

E-commerce project milestones

- **Week 12**
 - Lecture - course introduction
 - Students should form groups and start to write Business + Project plans
- **Week 13**
 - Initial project meeting (each group [30 min]). Students should bring their Business + Project plans to this meeting for discussion.
- **Week 14**
 - Easter break
- **Week 15**
 - Lecture - intro to web-based systems
 - Tutorial (Netbeans, PHP, JavaScript, MySQL, TDD [1 h])
 - Assignment (Netbeans, PHP, JavaScript, MySQL, TDD [2*4 h])
- **Week 16**
 - SCRUM meeting (each group + TT/ [10 min]). During SCRUM meetings, we might detect the need of a more in-depth discussion of some aspects. Then, the group should agree on a time slot during Office Hours.
- **Week 17**
 - SCRUM meeting (each group [10 min])
- **Week 18**
 - Mid term presentation (each group [30 min])
- **Week 19**
 - Students are expected to continue SCRUM meetings without supervision. Students may request office hours.
- **Week 20**
- **Week 21**
 - First draft of final report due
- **Week 22**
 - final presentation (each group 30 min)
 - final meeting + final report (each group 30 min)

E-commerce project ...

- **Business & project plan:**
 - Description of the business case
 - "How will you make money?"
 - Pros & cons
 - A system architecture
 - "How will it work?"
 - Must include: ER diagram, Use cases & Description of user interface
 - An implementation plan
 - Project time plan
- **Mid term report:**
 - to follow up on your progress
- **Final presentation:**
 - ... of your project and demonstration of a working solution
- **Final report:**
 - The business case
 - A description of the system

Lecture topics

- My lectures
 - Intro to e-commerce
 - Architectures and web servers
 - Web server frameworks
 - Security
 - (ER modeling, Databases, Relational model, SQL and DB API' s – now a prerequisite)
 - Student presentations
 - Project presentations

Web based technologies ...

- Html, Xhtml, XML, HTML5, CSS, Xslt
- JavaScript, Applets and client side programming
- SSI, CGI, SCGI, FastCGI
- JavaServer Pages (JSP), Java Servlets and server side programming
- ASP/ASP.NET
- Perl, PHP, Python, Ruby, Tcl
- JDBC and DB API's
- Java DB (Derby)
- LAMP (Linux, Apache, MySQL and PHP)
- Apache & Tomcat

Web based technologies cont. ...

- Semantic web, Web services, WSDL, SOAP, Document Object Model (DOM)
- Google web toolkit, JavaServer Faces, Struts, Tapestry
- Ruby on Rails, WebObjects, Catalyst, Django
- Web 2.0, Ajax Programming
- Semantic web, Web services, WSDL, SOAP, Document Object Model (DOM)
- NetBeans
- Data persistence, concurrency & transactions
- Architectures & case studies
- Java EE & Enterprise Java Beans, GlassFish, etc.

Preliminary grading of the course

- Assignment 5%
- Project 95%
 - forming group & providing project idea 5%
 - project plan 10%
 - mid term evaluation 10%
 - Report
 - presentation quality (story from 1st to last)
 - time (compare with plan)
 - Content
 - level of complexity
 - data model
 - use cases
 - test cases
 - final presentation 10%
 - presentation quality
 - technical content
 - effort made
 - final group discussion 10%
 - presentation quality
 - technical content
 - effort made
 - project 40%
 - Report
 - time (compare with plan)
 - technical quality
 - technical content
 - level of complexity
 - data model
 - use cases
 - test cases
 - student presentation 10%

Mid-term project evaluation

- In the midterm evaluation you will present your project and the current status and future plans for finalizing your project. We might ask questions about various topics such as:
 1. Presentation of the idea and business case
 2. Overall design of the system
 3. Data model
 4. Use cases
 5. Test cases
 6. Working prototype
 7. User interface
 8. Present project status. Compare to project plan.
 9. Plan for the rest of the project. Any changes of the initial plan?
 10. Talk to us about how you divided the work between each other, how project communication, administration and group work is progressing.
 11. Additional technical aspects such as security, error handling, code management and revision control, bug control, etc.
 12. Encountered problems?

Note! similar questions will be asked for the final assessment. Hence, being active at the half time assessment is a good way of preparing for the final assessment.

Final project presentation and evaluation

For the final presentation you should focus on:

1. Presentation of the idea and business case
2. Overall design of the system
3. Data model
4. Use cases
5. Test cases
6. Working prototype
7. User interface
8. Additional technical aspects such as security, error handling, code management and revision control, bug control, etc.
9. You can also present how the project was carried out from an administrative perspective, i.e. how was the work divided, how project communication was handled, project administration, etc.
10. Encountered problems?
11. Present project status - compare to project plan.
12. Demo

For the final group discussion we are going to discuss your project a bit more in detail when it comes to:

1. Overall design of the system
2. Data model
3. Use cases
4. Test cases
5. Error handling
6. Security
7. User interface
8. Code management and revision control, bug control, etc.
9. What is missing
10. The project work
11. Administration
12. Final report
13. Lessons learned ...

Final e-commerce project report

- In the final evaluation you should hand in a project report.
- It should be a normal technical project report. A possible report structure that I extracted from this book: http://www.amazon.co.uk/Thesis-Projects-Students-Computer-Information/dp/1848000081/ref=sr_1_3?ie=UTF8&qid=1306270835&sr=8-3.
- The suggested structure cover:
 - Title page
 - Abstract
 - Ch 1: Introduction
 - Ch 2: Background
 - Ch 3: Problem description and statement
 - Ch 4-6: The core of the report (in this case e.g. requirements specification, design, implementation, results, evaluation.
 - Ch 7: Related work
 - Ch 8: Conclusion

Introduction to E-commerce and Web-based systems

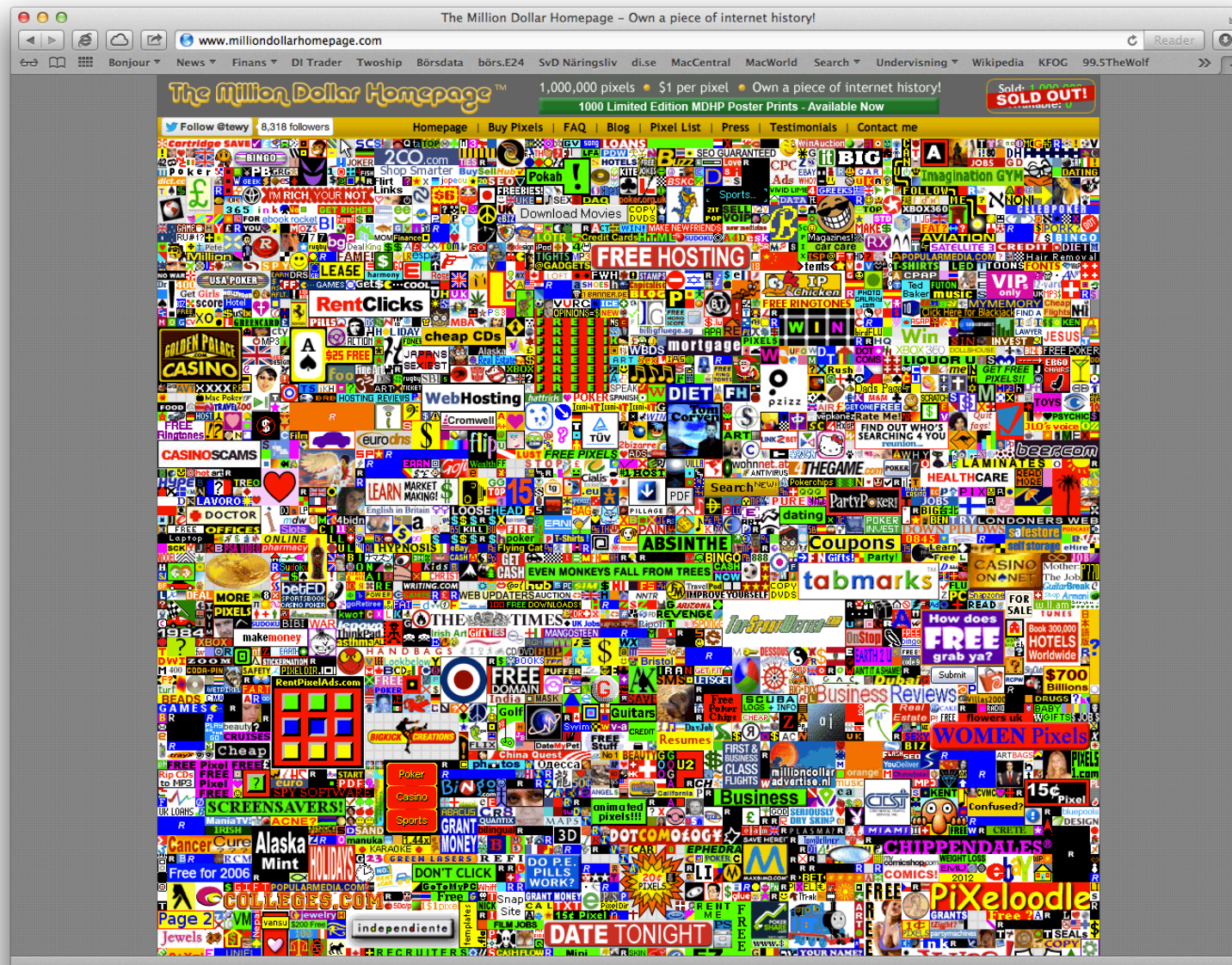
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Kjell Orsborn

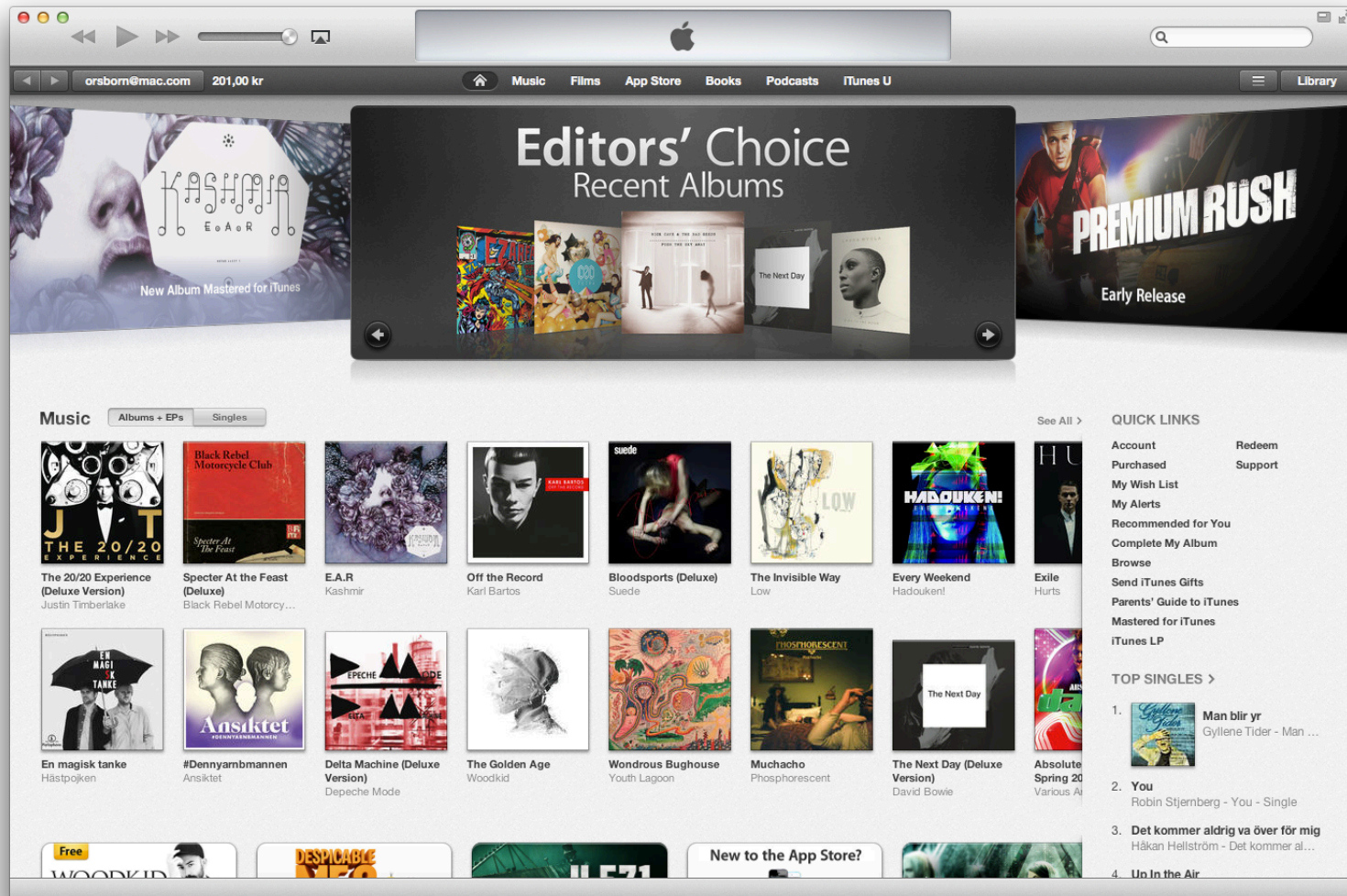
Department of Information Technology
Uppsala University, Uppsala, Sweden

Now – thinking out of the box!

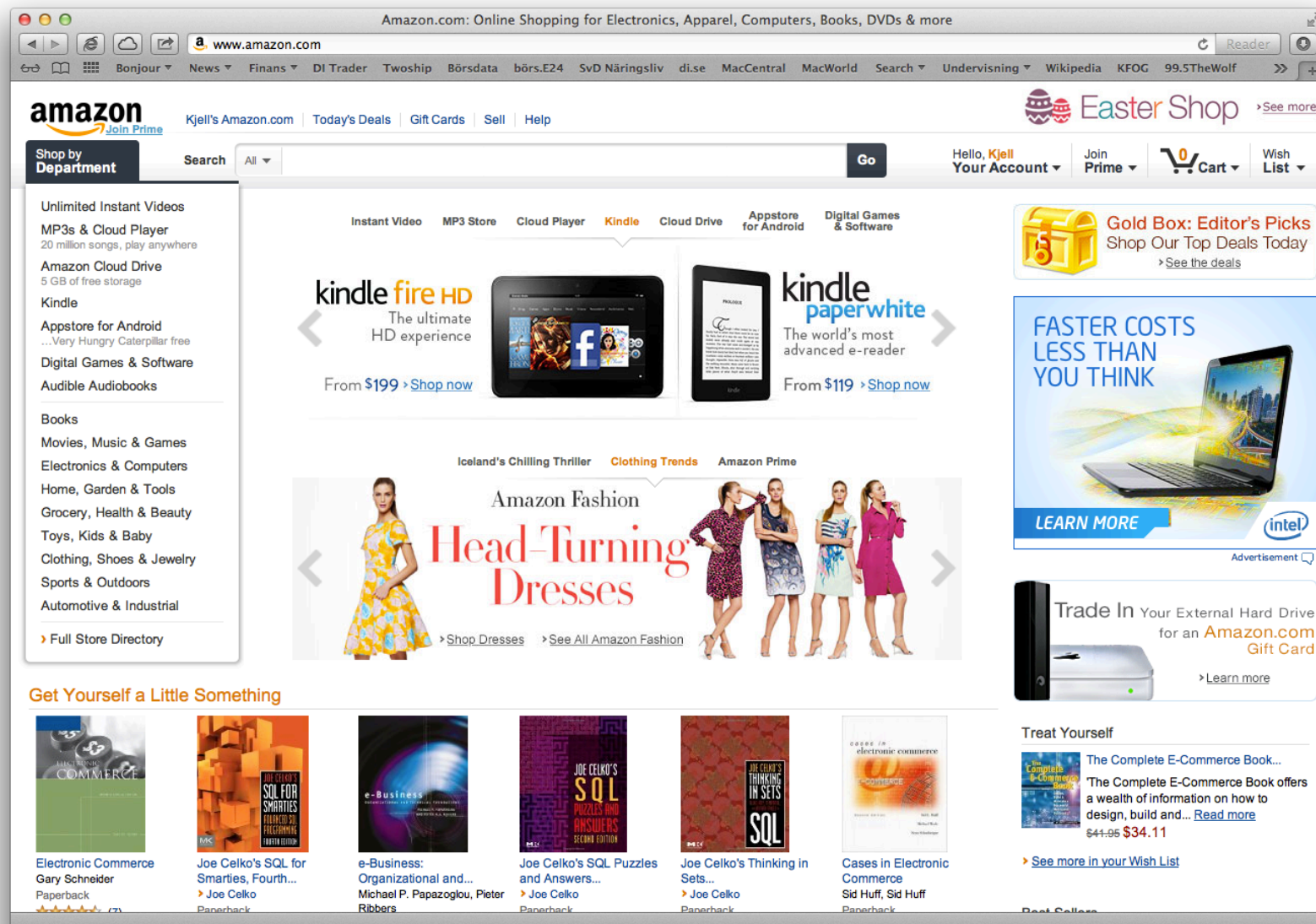
Examples of some successful e-commerce applications (1)



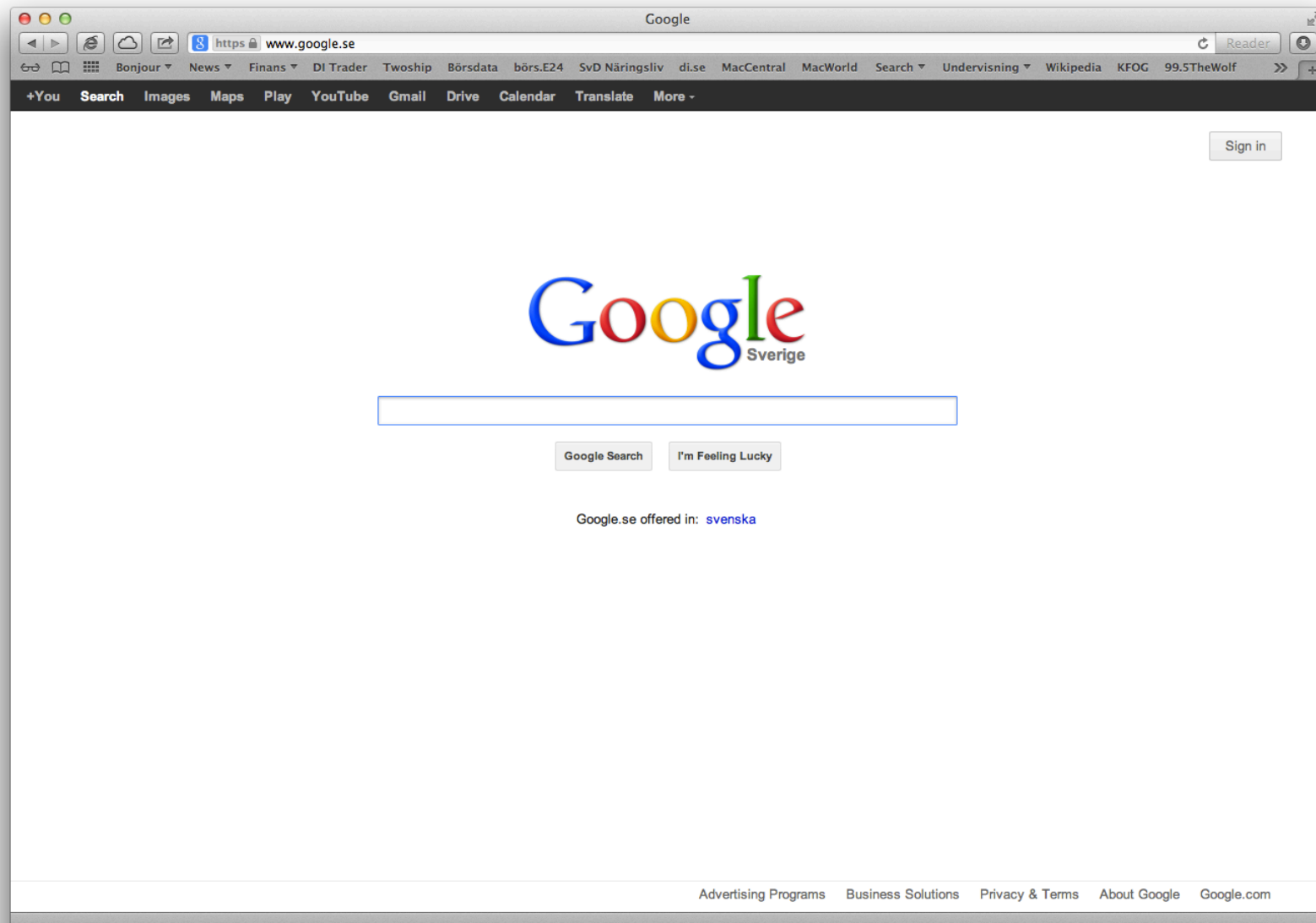
Examples of some successful e-commerce applications (2)



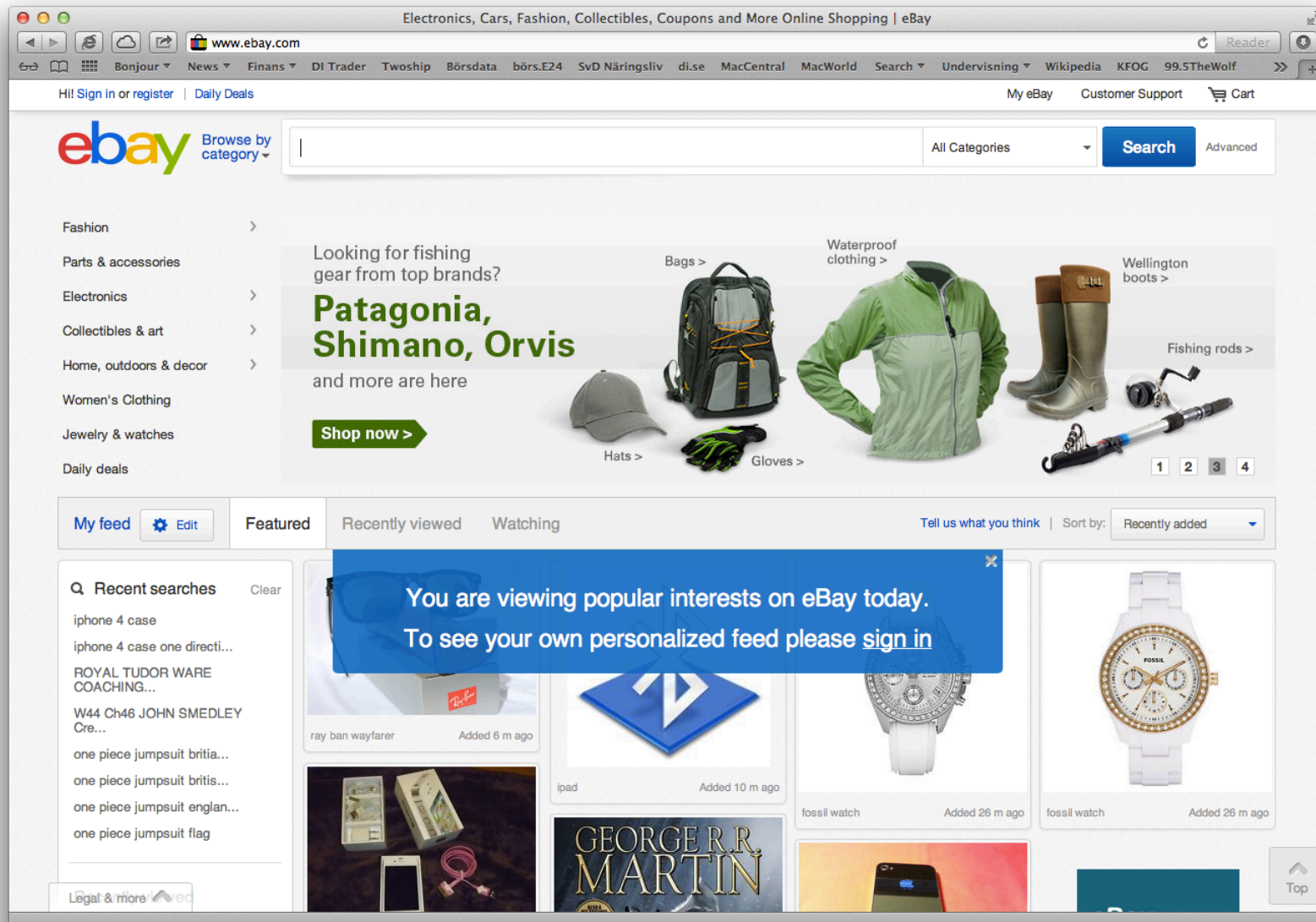
Examples of some successful e-commerce applications (3)



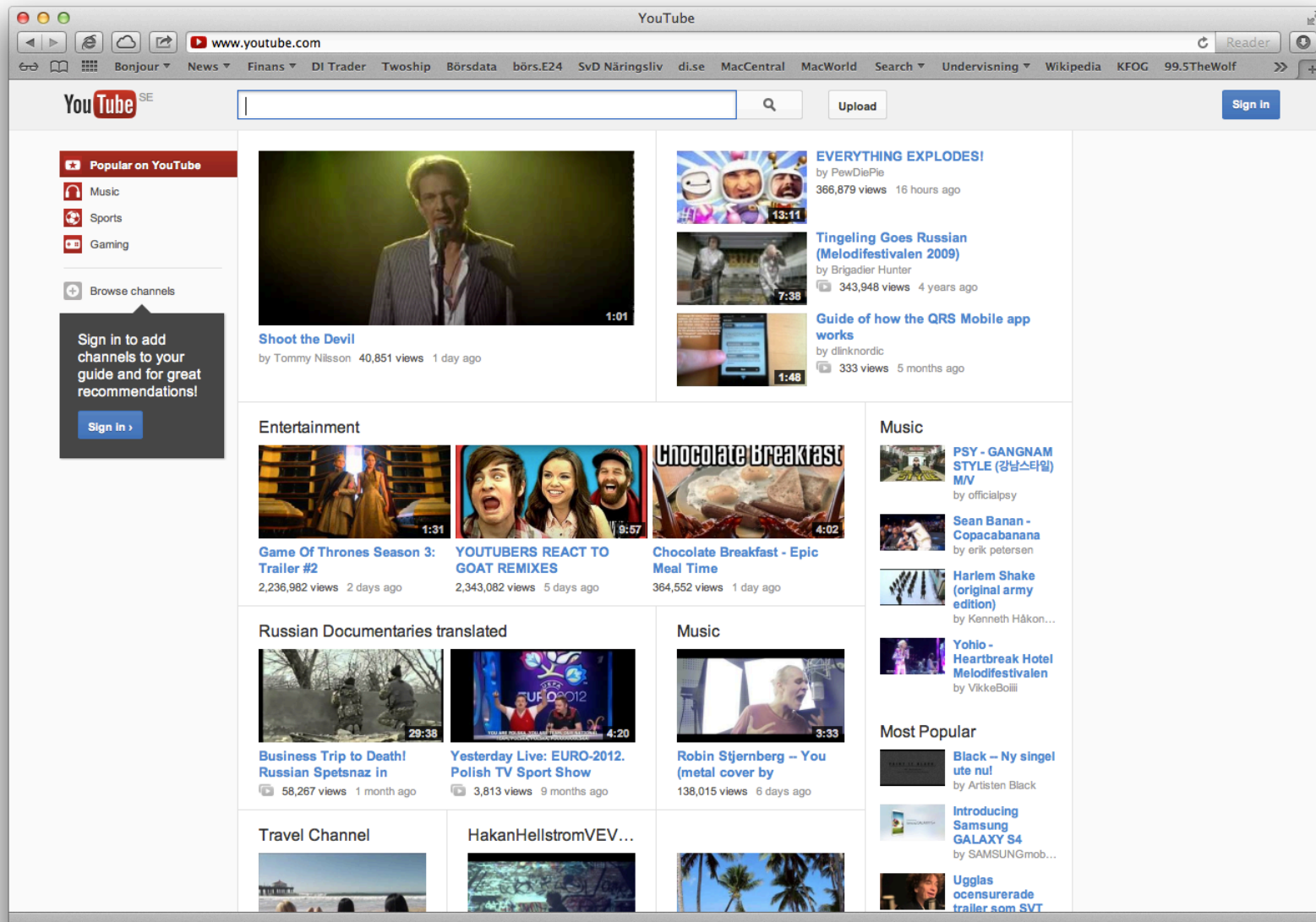
Examples of some successful e-commerce applications (4)



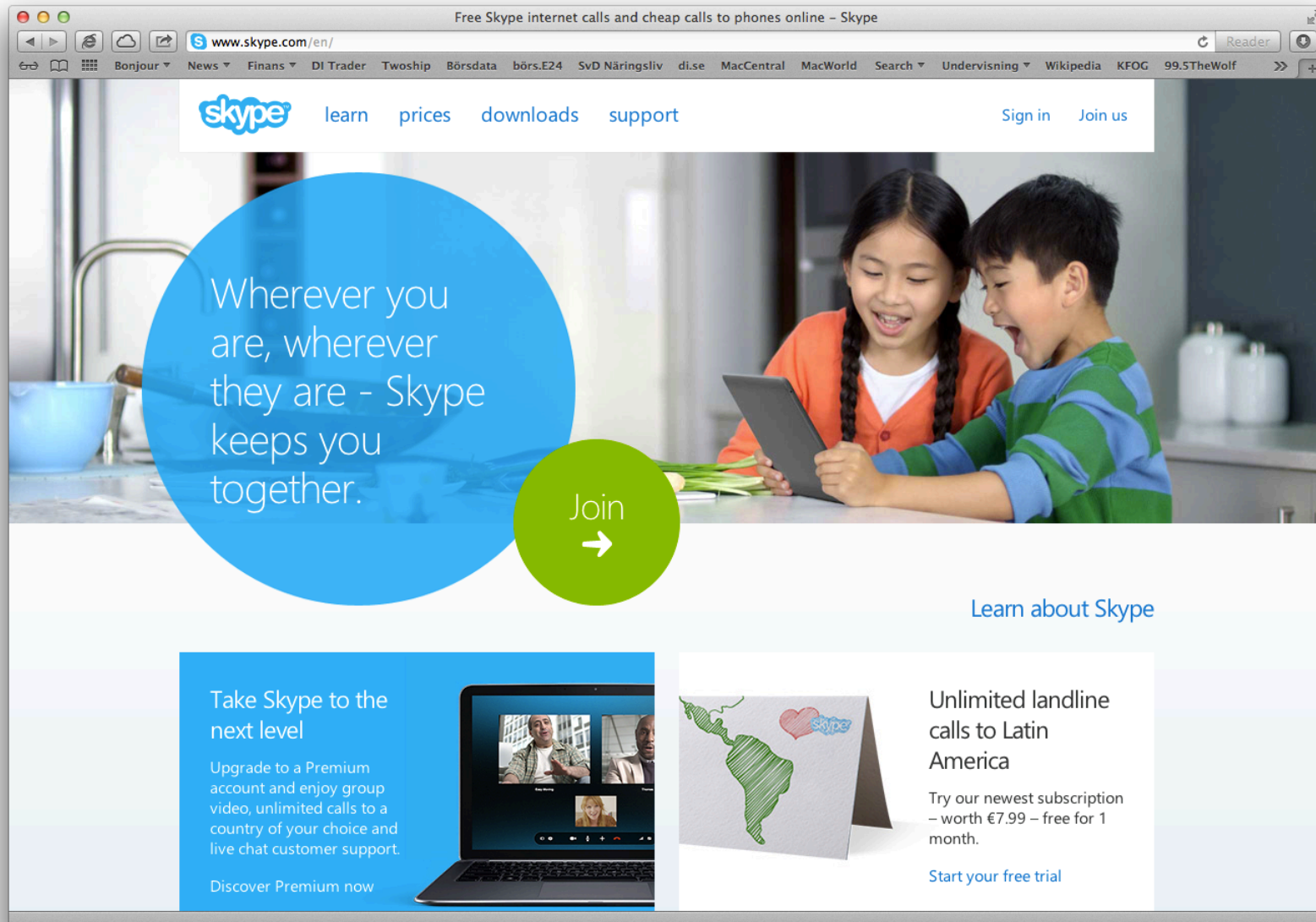
Examples of some successful e-commerce applications (5)



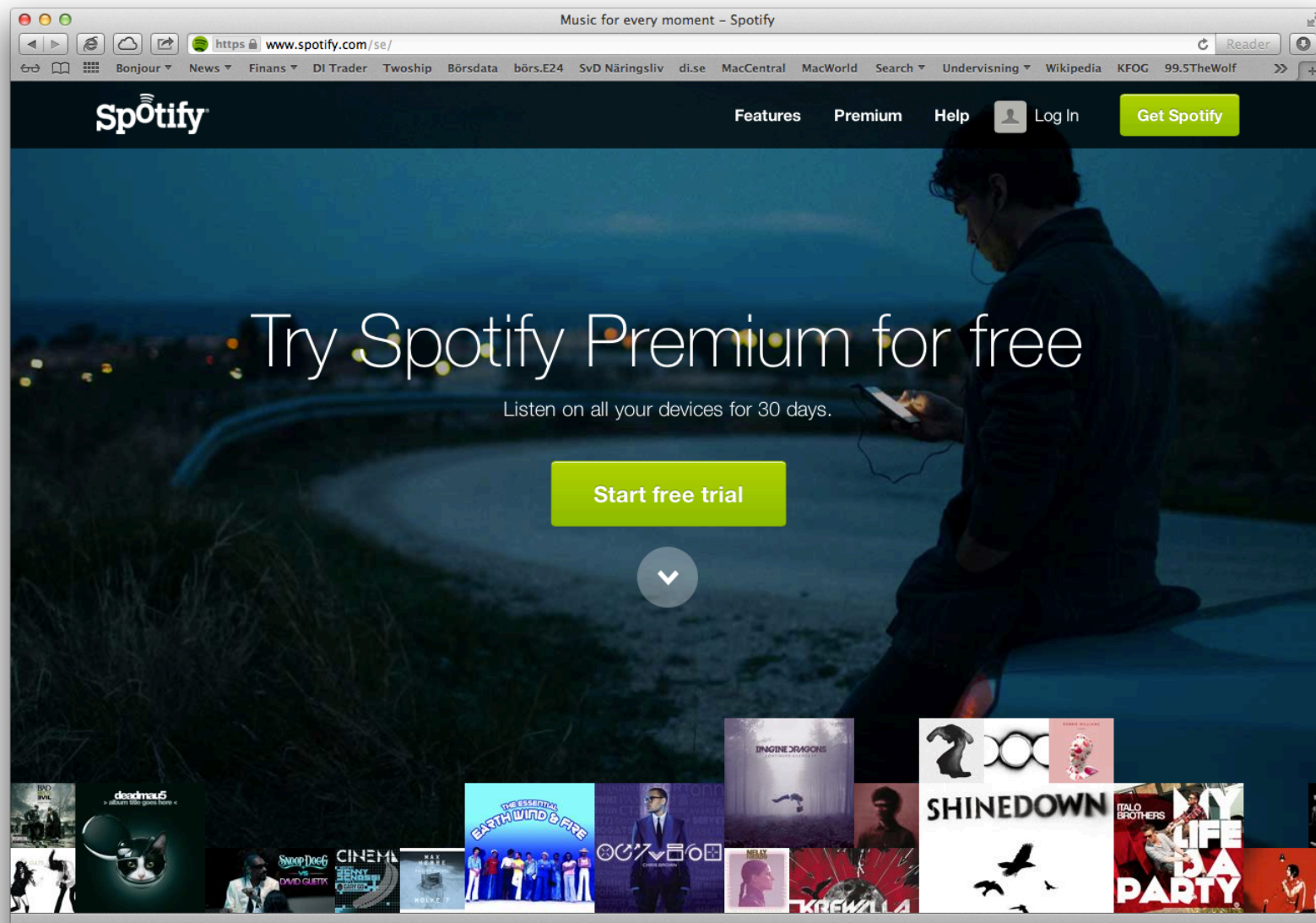
Examples of some successful e-commerce applications (6)



Examples of some successful e-commerce applications (7)



Examples of some successful e-commerce applications (8)



Examples of some successful e-commerce applications (9)

The screenshot shows the NASDAQ Stock Market website interface. The header includes the NASDAQ logo and navigation links such as "My NASDAQ", "Portfolio Tracker", "Ticker", "Corporate/Listing", and "Investor Relations". A search bar is located in the top right corner.

The main content area features a "Professional Online Trading?" banner with a "SAXO BANK" logo. Below this, a navigation bar lists various market indices and trading tools, including "Sign In", "Quotes+", "Market Activity", "Extended Trading", "News", "ETFs", "Tools", "Personal Finance", "Charts", "IPOs", "Sector", "Holdings/Insider", and "Join TD Ameritrade".

The left sidebar contains a "Quotes+" section with links to "FlashQuotes", "InfoQuotes", "Summary Quotes", "Company News", "Charts", "Company Financials", "Revenue / EPS Summary", "Pre-Market Quotes", "After Hours Quotes", "Analyst Stock Research", "Holdings Summary", and "Guru Analysis". Below this is a "Market Activity" section with links to "Most Active", "Unusual Volume", "NASDAQ Indexes", "Market Indexes", "Sector Indexes", "NASDAQ Composite Index", "NASDAQ-100 Index", "NASDAQ-100 Heat Map", "Commodity Prices", and "Total Returns".

The main content area displays a "Get Up To 10 Stock Quotes" section with a "SYMBOL LOOKUP" box and a "100 FREE TRADES" promotion. Below this is a "NASDAQ LiveQuotes" section with a "Login | Try It!" button. The "NASDAQ-100 Index" is prominently displayed with a line chart showing its performance over time. A table of market indices is also shown, including the NASDAQ, DJIA, S&P 500, and others.

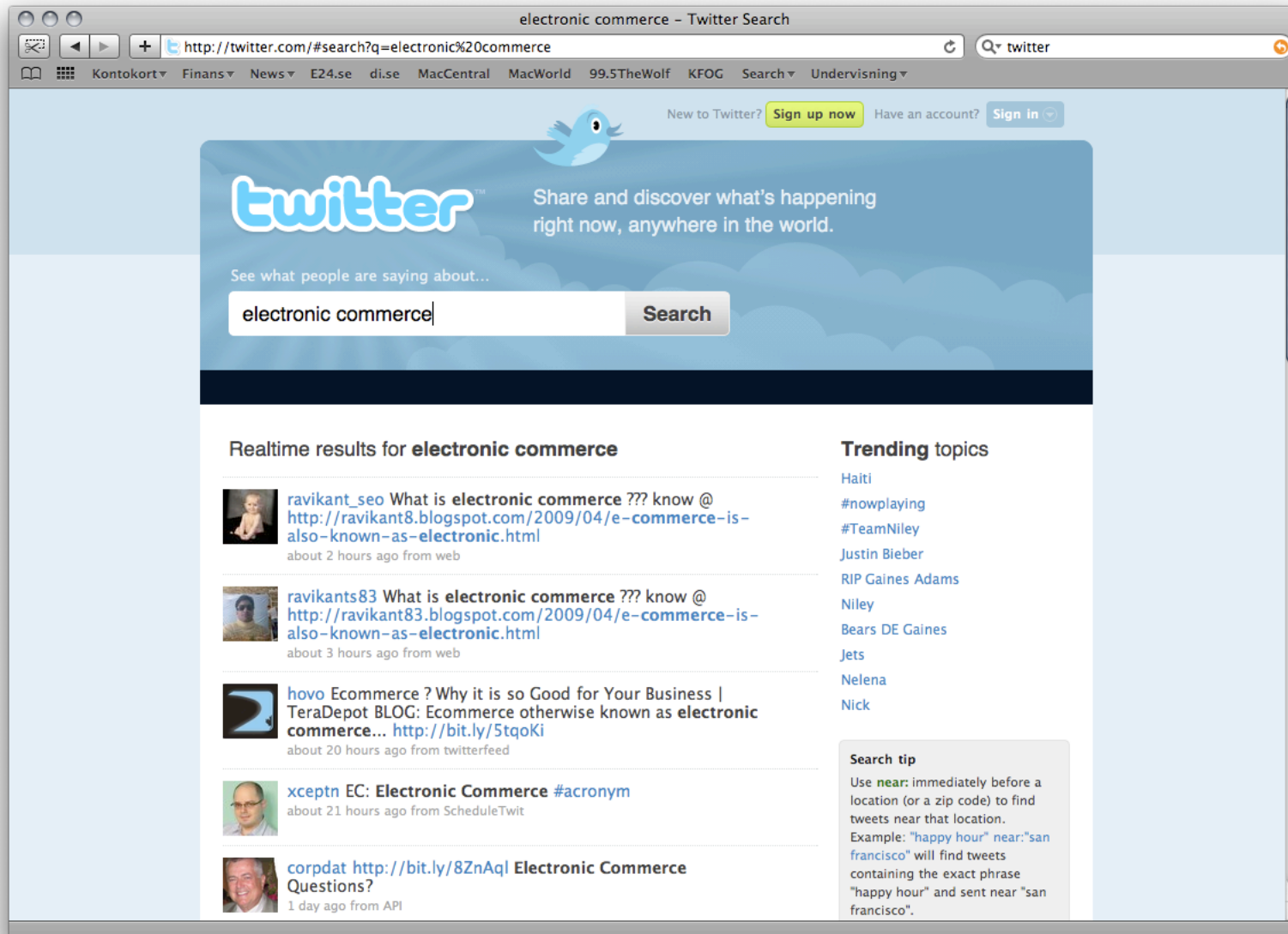
The right sidebar features a "NASDAQ.com Beta" section with a "Check out NASDAQ Beta" button and a "More NASDAQ Stock Market Web Resources" section with links to "NASDAQTrader.com", "NASDAQ.net", "NASDAQ Newsroom", and "NASDAQ-100.com". Below this is a "Stock Market Summary - Provided by Briefing.com" section with a "4:25 PM ET" timestamp and a brief summary of the day's trading activity.

At the bottom, there is a "31 Big Name Blue Chip Stocks to Sell Now -FREE!" section with a "31" badge and a "Take SaxoTrader for a FREE testdrive here" banner.

Examples of some successful e-commerce applications (10)



Examples of some successful e-commerce applications (11)



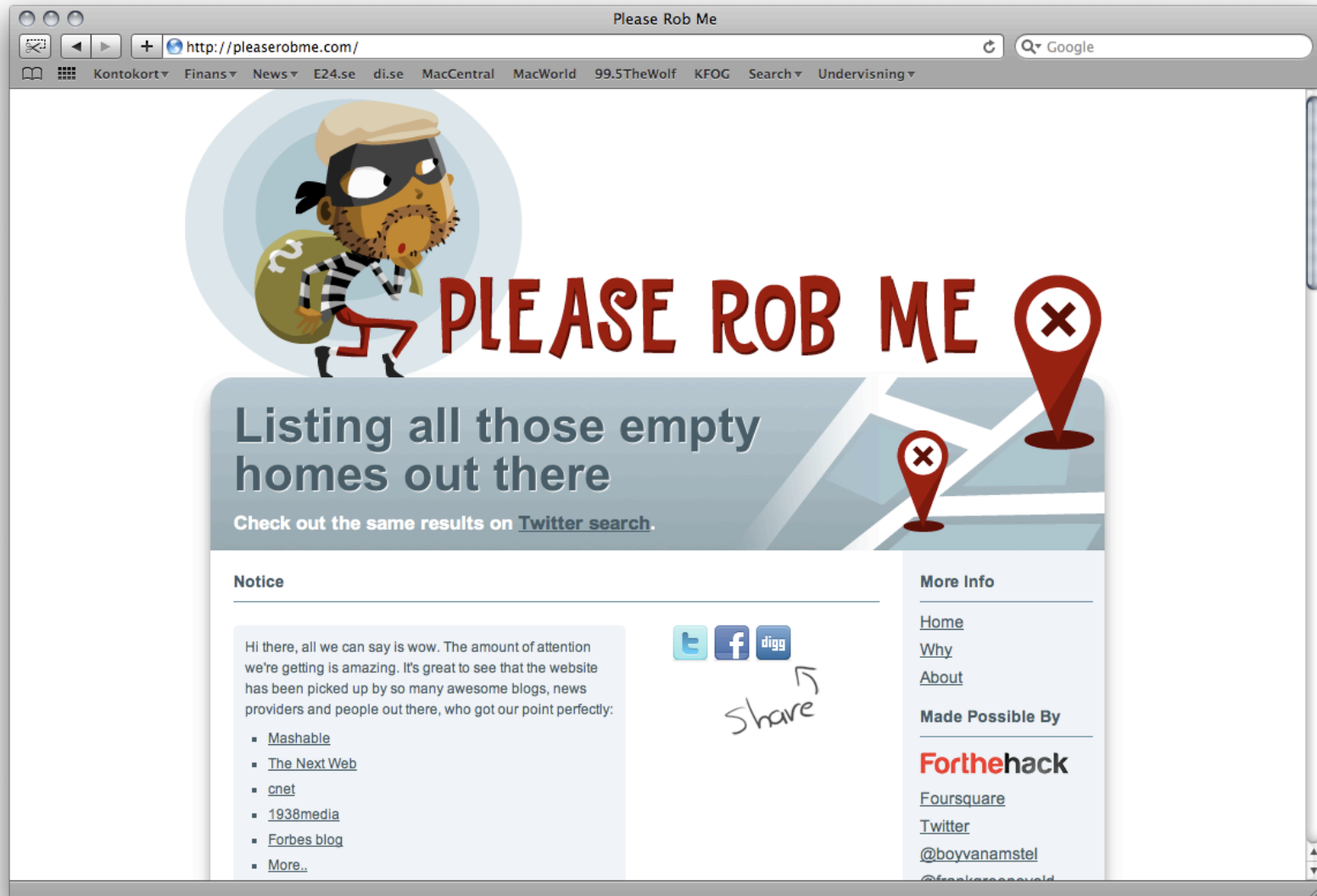
Examples of some successful e-commerce applications (12)

500 million apps downloaded.
And counting.



There are more than 15,000 apps on the App Store, and so far iPhone users have downloaded an incredible 500 million, in every category from games to business.

Examples of some successful e-commerce applications (13)



Examples of some successful e-commerce applications (14)

The screenshot shows the Bambuser website interface. The header includes the Bambuser logo, navigation links (Broadcasts, Users, Events), and a search bar. The main content area features a large video player with a live stream of a woman speaking. Below the video player is a chat window with viewer comments. To the right of the video player are social media sharing icons (Facebook, Twitter, YouTube, RSS) and a 'Share in realtime' label. Further right is a section titled 'Start streaming live video now' with a 'Sign up for free' button and a note that it takes less than 20 seconds. Below this is a section for 'What do people use Bambuser for?' with four featured videos: 'Share the hilarious things in life with your', 'Keep your family closer - When Pär and Malin got', 'From anyone to everyone - The Pirate Bay', and 'This is just pure fun! - David is partying with his'. On the right side, there is a section for 'North Africa / Middle East' and a 'Recent Activity' section with a 'Sign Up' button.

bambuser BETA
Live from your mobile!

Search

Broadcasts Users Events Home Help Log In

Live video streaming from your mobile phone or webcam

LIVE

22:42 Dan: Hi, you guys take it easy there :)
22:45 Julia: I'm sooo jealous... awesome tunes!
22:46 Oscar: I'm just around the corner, wanna meet up?
22:49 Sofia: Om nom nom

chat with your viewers

share in realtime

Start streaming live video now

Sign up for free

it takes less than 20 seconds

Or sign up via

Sign up via Facebook

Supported phones
Help & FAQ

What do people use Bambuser for?

Share the hilarious things in life with your

Keep your family closer
- When Pär and Malin got

From anyone to everyone - The Pirate Bay

This is just pure fun! - David is partying with his

North Africa / Middle East

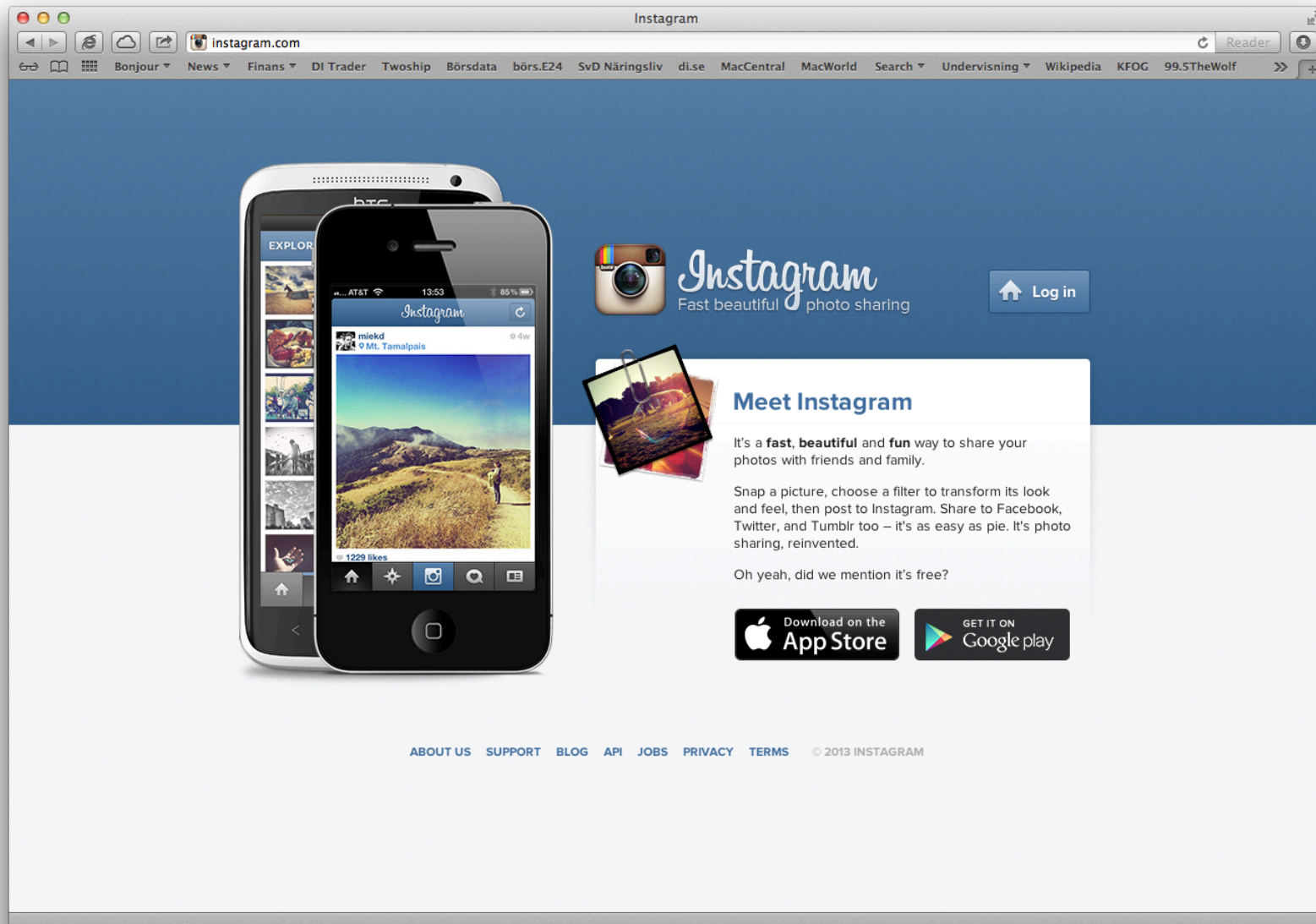
Follow real people showing the world their views on the political situation

Recent Activity

Sign Up Create an account or **log in** to see what your friends are doing.

Loading "http://bambuser.com/", completed 15 of 16 items

Examples of some successful e-commerce applications (15)



Your e-commerce project constraints

Your e-commerce project constraints



Think Different!

A Quick 5-minute exercise

- Imagine having to build a large e-commerce site such as Amazon or eBay.
- Write down 5 major requirements of any such site.

A Quick 5-minute exercise

- Imagine having to build a large e-commerce site such as Amazon or eBay.
- Write down 5 major requirements of any such site.
 - secure purchase & secure site
 - robust & easy to use
 - fast (enough)
 - scalable
 - customized experience
 - internationalization and localization (i18n & L10n)

Technical Issues for E-commerce architects

- Security in all its forms
- Transactions & replication
- Coping with stateless HTTP protocol
 - User-tracking
- Dynamic pages
- Speed of development/change
- Division of labour:
 - graphics designers, programmers, business types
- Factoring the processes: tiers
- Support for data warehousing

A question

- Q: What distinguishes an e-commerce system from any other large system deployed on the web?

A question

- Q: What distinguishes an e-commerce system from any other large system deployed on the web?
- A: Not much.
 - Such sites must be secure, robust, scalable, etc...

Enterprise computing

- Most of the aforementioned concerns apply to the architecture of any enterprise level solution
- Enterprise systems include those for e-commerce, but also denote
 - Internal, web-enabled, systems
 - Systems with no element of “commerce” as it is usually understood
- Technologies discussed in this course applies to enterprise-level systems, not simply those involving e-commerce

What isn't here

- Design
- Multimedia delivery
- Hosting
- Mobile internet
- Management
- Ethics, as e.g.
 - Is it a good thing that Hotmail has access to the personal messages of 100 million inhabitants of the globe?
 - Is it a good thing that Google have histories of browsing patterns?
 - Is it a good thing that Ebay have access to millions of trading details?

How money is being made on the net

- In principle...
- Caveat!
 - some of the information in the following slides may not be up to date, given the rapid development of the internet
 - exercise: try to find out the latest figures for each technology so you can gauge the rate of change!

Current e-commerce models

- Brokerage
- Advertising
- Infomediary
- Merchant
- Affiliate
- Community
- Subscription
- Utility

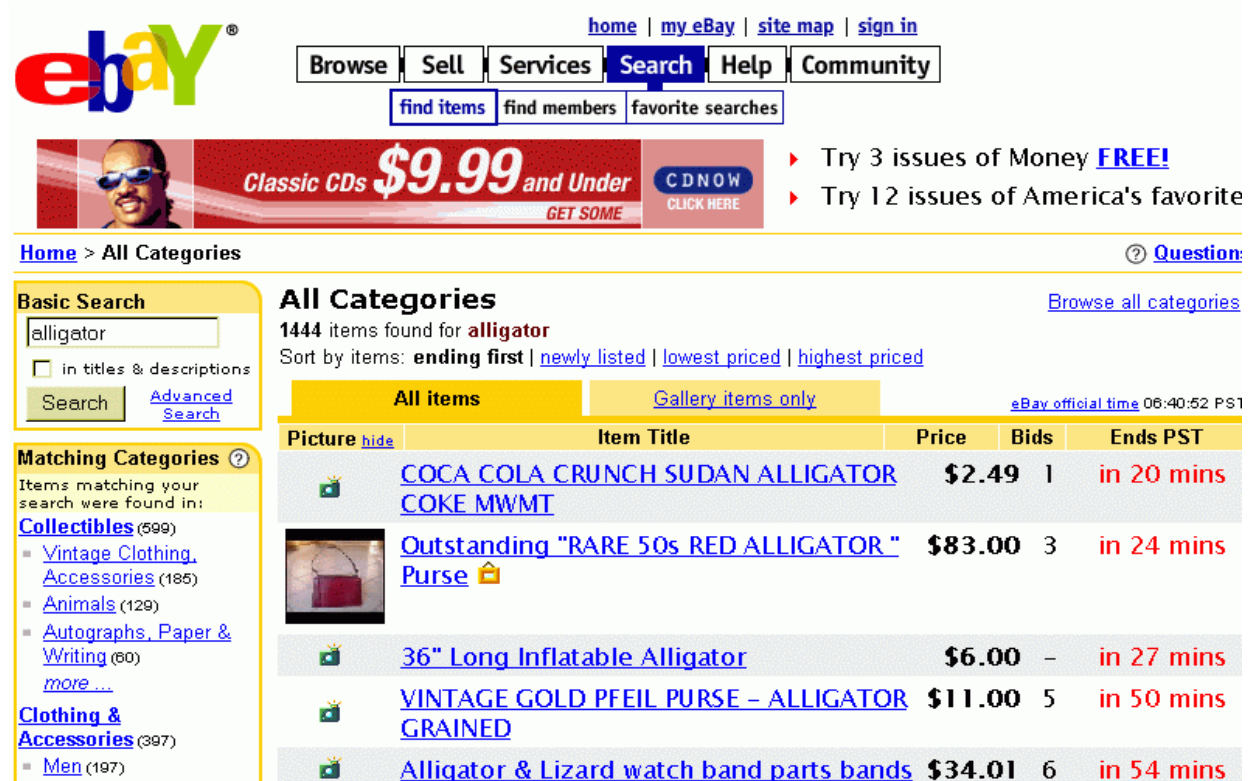
– Source: Hardaker & Graham (2001) p22

Brokerage

- Bring buyers and sellers together
 - Can be B2B, B2C or C2C
- Usually charge fee for transaction being brokered
- Many forms:
 - virtual malls
 - portals eg Yahoo
 - auction eg eBay
 - common services eg zShops (Amazon)
 - buyer aggregator
 - reverse auction: “name-your-price”

Example: eBay

- Pioneered auction model in 1995
- 62 millions users
- 10 million unique auctions in progress at any time
- In UK alone, 150m pounds changed hands in Q4 2002
- Est. 40000 given up jobs to become eBay traders
- One of most profitable ecoms

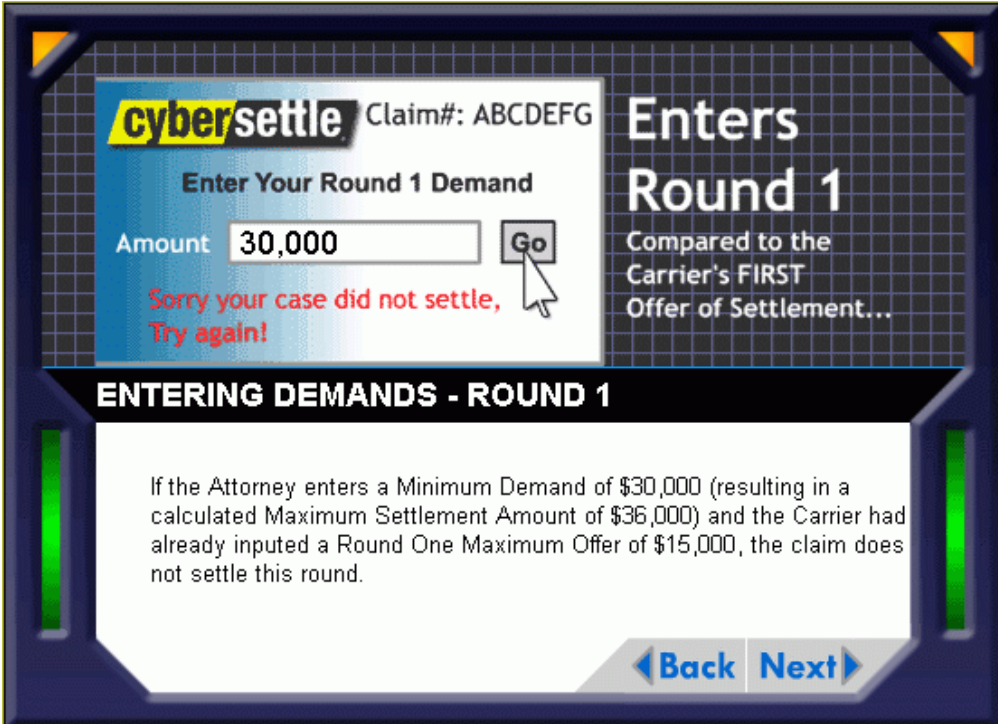


The screenshot shows the eBay homepage with the search bar containing 'alligator'. The search results are displayed under the 'All Categories' section, showing 1444 items found. The results are sorted by 'ending first'. The table lists items with their titles, prices, bids, and ending times.

Picture	Item Title	Price	Bids	Ends PST
	COCA COLA CRUNCH SUDAN ALLIGATOR COKE MWMT	\$2.49	1	in 20 mins
	Outstanding "RARE 50s RED ALLIGATOR" Purse	\$83.00	3	in 24 mins
	36" Long Inflatable Alligator	\$6.00	-	in 27 mins
	VINTAGE GOLD PFEIL PURSE - ALLIGATOR GRAINED	\$11.00	5	in 50 mins
	Alligator & Lizard watch band parts bands	\$34.01	6	in 54 mins

Example: Cybersettle

- Settles disputes online, without lawyers
- Each member of dispute enters 3 settlement bids (high, medium, low) without knowledge of the other party's bids
- If any pair of bids is within 30%, the mean is paid as settlement
- Continues until settlement



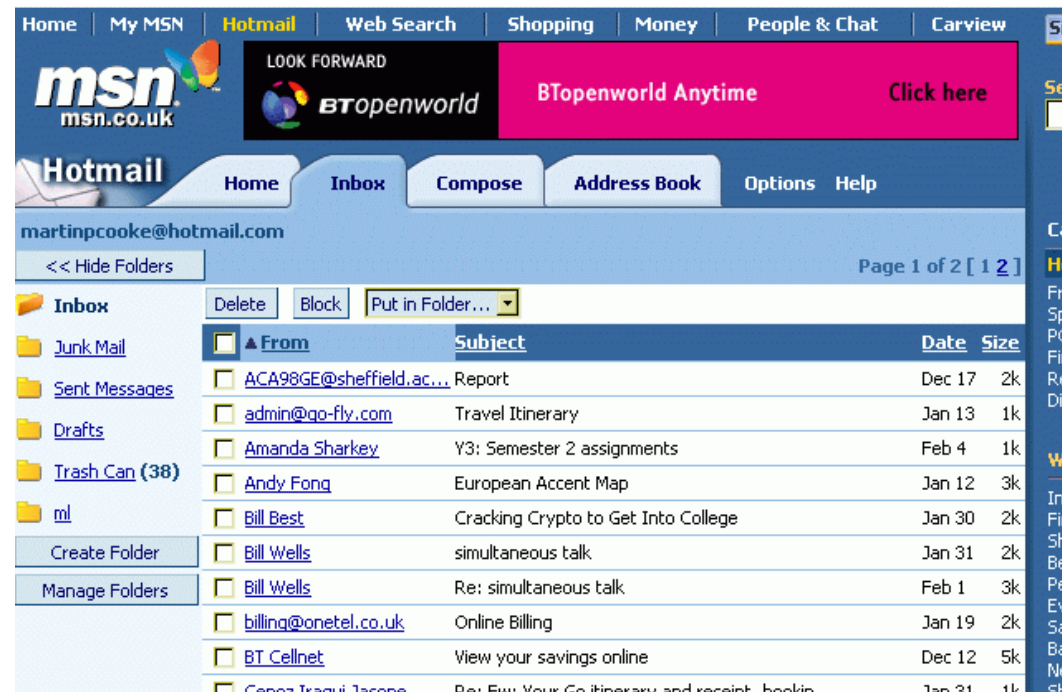
The screenshot displays the Cybersettle web interface. At the top, the 'cybersettle' logo is next to 'Claim#: ABCDEFG'. The main heading is 'Enter Your Round 1 Demand'. Below this, the 'Amount' field contains '30,000' and a 'Go' button is visible. A red message states: 'Sorry your case did not settle, Try again!'. To the right, a section titled 'Enters Round 1' says 'Compared to the Carrier's FIRST Offer of Settlement...'. Below the main input area, a black banner reads 'ENTERING DEMANDS - ROUND 1'. The bottom section contains explanatory text: 'If the Attorney enters a Minimum Demand of \$30,000 (resulting in a calculated Maximum Settlement Amount of \$36,000) and the Carrier had already inputted a Round One Maximum Offer of \$15,000, the claim does not settle this round.' At the bottom right, there are 'Back' and 'Next' navigation buttons.

Advertising

- Since the web started as a publishing medium, advertising was the early (and obvious) business model
- Traditional CPM (cost per 1000 model) used in eg TV is becoming redundant
- Focus on narrowcasting via intelligent software agents

Example: hotmail.com

- Pioneer of viral advertising
- Largest web-based email company (launched 96, acquired by M\$ in 98)
- Fastest growth of subscriber base of any company in history
- Spent only \$500,000 on advertising (5% of competitors' costs) in 2 years



Infomediary

- Collects and markets information to other businesses (to aid narrowcasting)
- Syndicators: sell capability rather than content eg Amazon zShops use Amazon ordering system

Type of site	Information collected
Recommender eg deja.com (now owned by Google), ePinions	Users' opinions about products
Free content	Users' registrations details and site usage patterns

Merchant model

- Selling goods and services online
 - Existing wholesalers and retailers (“e-tailers”): clicks & mortar, sometimes aggregated into malls
 - Virtual merchant eg Amazon
- Shopping trolley technology
 - Standard steps: find, add to trolley, checkout
 - Additional options: track shipping, cancel before dispatch
- E-wallets

Affiliate model

- Site offers financial incentives (usually % of revenue) to affiliates for any sales generated from affiliate sites
 - Pay-per-click
 - Pay-per-lead
 - Pay-per-sale
- Generates estimated 15-18% of sales
- Affiliates typically receive 7-15% commission
- Affiliate solution providers (eg tracking) are infomediaries
 - Linkshare.com

Example: Amazon.com

- Pioneered affiliate model in 1996
 - attempting to patent model
- 900,000 affiliates in 2003
- Pays up to 15%

The screenshot shows the Amazon.com homepage with a navigation bar at the top. The main content area features a search bar, a book listing for 'Modelling Auditory Processing and Organisation (Distinguished Dissertations in Computer Science No 7)' by Martin Cooke, and a 'READY TO BUY?' sidebar. The book listing includes the list price (\$50.00), the current price (\$50.00), and the used price (\$21.95). The availability is noted as 'Usually ships within 24 hours' and 'Only 1 left in stock--order soon (more on the way)'. The sidebar offers options to 'Add to Shopping Cart' or 'USE 1-CLICK'.

amazon.com. [VIEW CART](#) | [WISH LIST](#) | [YOUR ACCOUNT](#) | [HELP](#)

WELCOME YOUR STORE **BOOKS** ELECTRONICS TOYS & GAMES TOOLS & HARDWARE DVD COMPUTERS [SEE MORE STORES](#)

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Share your thoughts

Modelling Auditory Processing and Organisation (Distinguished Dissertations in Computer Science No 7)
by [Martin Cooke](#)

List Price: \$50.00
Our Price: **\$50.00**
[Used Price: \\$21.95](#)

Availability: Usually ships within 24 hours
Only 1 left in stock--order soon (more on the way).

Buy now, pay later on orders over \$150. [Learn how.](#)

Eligible for **FREE Super Saver Shipping** on orders of \$99 or more. [See details.](#)

READY TO BUY?

Add to Shopping Cart
(you can always remove it later)
(Use if you're redeeming a promotional certificate or coupon.)

[OR](#) **USE 1-CLICK**

Returning customer?
[Sign in](#) to turn on 1-Click ordering.

Shopping with us is safe. [Guaranteed.](#)

[Add to Wish List](#)

(We'll set one up for you)
[View my Wish List](#)

Subscription model

- Customers pay to access information
 - Wall Street Journal
- Roughly 50% of users say they won't (ever) pay for content
- Runs counter to most web developments
- Related models
 - subscribe to premium services after hooking users with free, but limited, content
 - e.g. Studyspanish.com
 - Microsubscription
 - e.g. pay for recipe rather than for whole cookery book

Utility model

- Pay-as-you-go (micropayments) as in other utilities such as electricity, phone etc
- Pay by the byte
- Much touted, but not much in evidence yet, apart from free ISPs which receive revenue from phone company for time online

Summary of business models

- Some are novel
 - e.g. affiliate
- New ones appearing all the time
- Behind webfront, business as usual for many companies, but others are purely virtual
- Have there been some less successful web businesses?
 - Boo.com!
 - Sell groceries