# Practical Programmer

The methodology of the professional and scientific work, Belgrade, Mathematical Faculty, April 2013

Dejan Vesić, <a href="http://www.vesic.org">http://www.vesic.org</a>

# or 4/5

The methodology of the professional and scientific work, Belgrade, Mathematical Faculty, April 2013 **Dejan Vesić**, <a href="http://www.vesic.org">http://www.vesic.org</a>

### Disclaimer

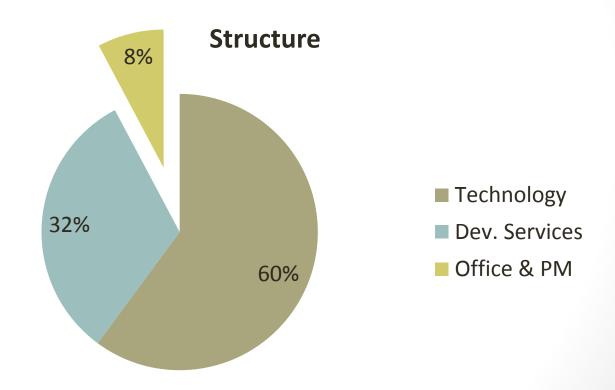
- Real life
- Happened many times (experience)
- This is about Software Development and NOT about Computer Science
- Honestly, I do not lie <sup>©</sup>
- I am old, probably outdated, but this is mandatory lecture ;-)

#### About me

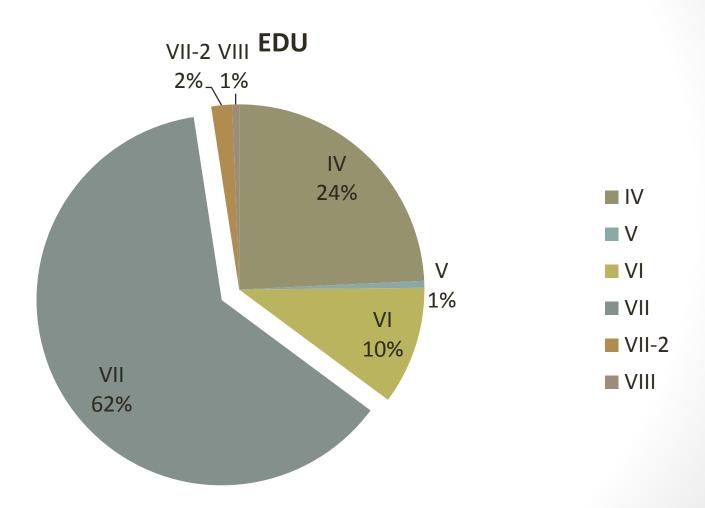
- Dejan Vesić
- More than 21 year in commercial software development
- Started as Clipper and FoxPro, then Oracle programmer, moved to Web (Asp & Asp.Net), ended on C# side (all rounder)
- Target systems: e-commerce sites of high risk and high traffic (bookmaking sites) backed by Oracle database
- Head of GTECH Belgrade company more than 190 employees, of which 80+% are programmers (and 10 in UK)
- Member of IEEE Computer Society, ACM and Mensa
- More details on <a href="http://www.vesic.org">http://www.vesic.org/english/</a>

### GTECH Belgrade

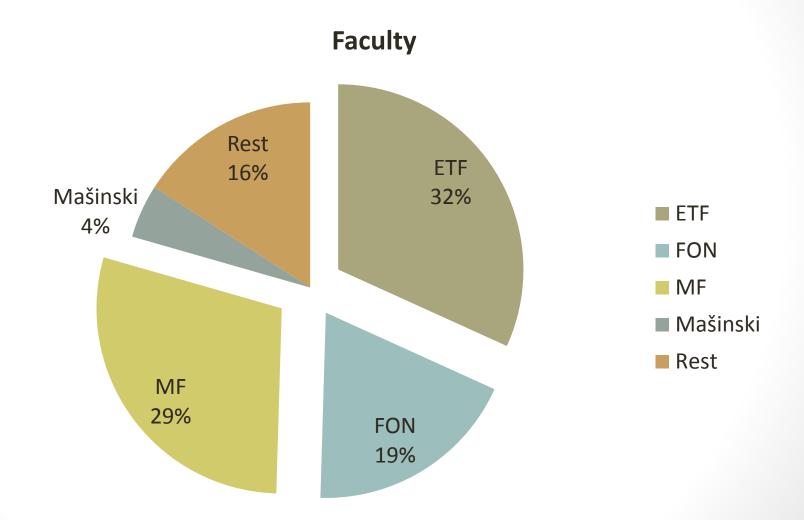
- From 1999 (BEG Finsoft)
- 190+ Employees: Techies 150



# GTECH Belgrade



# GTECH Belgrade



### Agenda

- Why this?
- You Start of:
  - Identity
  - Communication
  - Work
- First rule of Programming
- You Best Programmer Ever
- Usual Problems
- Dangerous Programming Errors
- Commercial Programming
- Team Work
- Documentation / Comments

- CV / Resume
- CV: General Rules
- CV: Bad Examples
- CV: References
- Selection of Candidates
- Interview Preparation
- Interview
- Interview About Money
- Final Decision
- Where Not to Look for Work
- References

### Start of You: Identity

- Mail address
  - Professional format (name.surname; no nicknames, or misleading terms)
  - Respect this medium as phone (daily, if not more often)
  - Think twice about it change is complicated
  - Think twice about provider / service
  - Private / Business one
  - Protect from spam (<a href="http://www.sneakemail.com">http://www.sneakemail.com</a> or similar service)
- Presentation / Web page (online CV)
- Twitter / Facebook / LinkedIn
- Blog
- Discussion groups / forums
- Build your personal brand create something! \*

<sup>\* &</sup>lt;a href="http://www.squidoo.com/distinguishyourself">http://www.squidoo.com/distinguishyourself</a>

### Start of You: Communication

- Learn to communicate with:
  - Customers
  - Clients
  - Users
  - Co-workers
  - Bosses
- Learn how to speak in public
- Learn how to persuade someone without shouting (guilty as charged ©)
- Learn how to explain w/o jargon ©
- Learn to communicate

#### START OF WORK - NOW AND FOREVER

### Start of Work

- You only or in small team
- Even pro bono one (no money, but practice and references)
- Open Source projects (community, communication, team work, team tools, remote work; <a href="http://sourceforge.net">http://sourceforge.net</a>)
- Teach Yourself Programming in Ten Years\*

  ("Bad programming is easy. Idiots can learn it in 21 days, even if they are dummies. "\*\*)

<sup>\* &</sup>lt;a href="http://norvig.com/21-days.html">http://norvig.com/21-days.html</a> - Peter Norvig

<sup>\*\*</sup> How to Design Programs, Second Edition

### Start of Work – R<sup>3</sup>





# Elance®

# ODESK.

- Real Work from requirements 'till support
- Real Money can be decent addition to income or full time
- Real Possibilities can be start of very useful relations

### Start of Work: Guidelines

- Keep learning (to avoid Coders syndrome)
- Learn a language (new one each 6 12 months)
- Read code of others REGULARLY
- Use Design Patterns (but understand them!)
- SOLID
- KISS (Keep It Simple Stupid <sup>(2)</sup>)
- <u>DRY</u> (Don't Repeat Yourself 'Pragmatic programmer')
- Automate (Scripting languages / build systems)

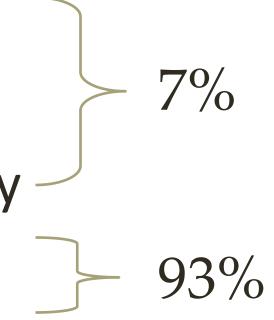
### Start of Work: Marketplace

- Web related technologies:
  - C# / .Net / ASP.NET
  - Java
  - PHP
  - Other (HTML5 / JavaScript / CSS)
  - Responsive design / mobile ready
- Mobile related:
  - IOS / Apple
  - Android
  - Windows Phone 8 (rarely)

- Desktop / server-side / database related:
  - .Net
  - Java
  - C++
  - Oracle PL/SQL
  - Other SQL databases (MySQL)
- Games related:
  - Flash / Action script
  - Java
  - Html 5 / JavaScript

# [Poll] Bugs - First rule of Programming: You made bug!

- OS
- Compiler
- Third party Library
- Programmer



### You - Best Programmer Ever

- No one can't control (really) on what you are working
- Your boss can't make you to be good programmer
- Only person who can make you great programmer is you
- Be **Humble**:
  - "The competent programmer is fully aware of the strictly limited size of his own skull; therefore he approaches the programming task in full humility, and among other things he avoids clever tricks like the plague."\*
- Be Vain: make something that looks as good as it works

<sup>\* &</sup>lt;a href="http://c2.com/cgi/wiki?TheHumbleProgrammer">http://c2.com/cgi/wiki?TheHumbleProgrammer</a>
Edsger Dijkstra, 1972 Turing Award lecture

### Daily Work

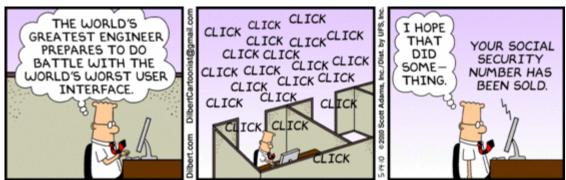
- Problems
  - Not Critical but important
- Errors
  - Critical
  - Can cause loss of money (for client) or private data
- Mistakes
  - Wrong ways to solve problems
  - Some out of your hands (team / process), some not

# Usual problems (algorithms /techniques)

- Exceptions
- Object lifecycle (Disposable)
- Locking
- Multithreading
- Messaging
- Internationalization / localization (I18N)
- DB: Transactions, Locking, Triggers, Data reconciliation

# Usual Problems (desktop)

- User Interface
  - Usability
    - All with keyboard as well
    - Distribution and order of controls on form
    - Adapt to environment (resolution / DPI / font size)
    - No confirmation for positive actions
    - Very careful selection of defaults
  - Standardization
    - As much as similar to existing applications on given platform (Office)
- Ease of Use
- Zero Tester (your mother? ©)



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# Usual Problems (Serbian ones)

- No responsibility (all excuses)
- Very bad code:
  - IPP (Serbian: APP)
  - Only positive branch
  - No standard way of error handling
  - Non-existent documentation
- Overdue delivery
- Over self-confidence w/o results behind that

### 2011 CWE/SANS Top 25 Most Dangerous Programming Errors (1/3)

- Insecure Interaction Between Components
  - Improper Neutralization of Special Elements used in an SQL Command ('SQL Injection')
  - Improper Neutralization of Special Elements used in an OS Command ('OS Command Injection')
  - Improper Neutralization of Input During Web Page Generation ('Cross-site Scripting')
  - Unrestricted Upload of File with Dangerous Type
  - Cross-Site Request Forgery (CSRF)
  - URL Redirection to Untrusted Site ('Open Redirect')

Reference: <a href="http://cwe.mitre.org/top25/#Brief">http://cwe.mitre.org/top25/#Brief</a>

### 2011 CWE/SANS Top 25 Most Dangerous Programming Errors (2/3)

#### Risky Resource Management

- Buffer Copy without Checking Size of Input ('Classic Buffer Overflow')
- Improper Limitation of a Pathname to a Restricted Directory ('Path Traversal')
- Download of Code Without Integrity Check
- Inclusion of Functionality from Untrusted Control Sphere
- Use of Potentially Dangerous Function
- Incorrect Calculation of Buffer Size
- Uncontrolled Format String
- Integer Overflow or Wraparound

Reference: <a href="http://cwe.mitre.org/top25/#Brief">http://cwe.mitre.org/top25/#Brief</a>

### 2011 CWE/SANS Top 25 Most Dangerous Programming Errors (3/3)

#### Porous Defenses

- Missing Authentication for Critical Function
- Missing Authorization
- Use of Hard-coded Credentials
- Missing Encryption of Sensitive Data
- Reliance on Untrusted Inputs in a Security Decision
- Execution with Unnecessary Privileges
- Incorrect Authorization
- Incorrect Permission Assignment for Critical Resource
- Use of a Broken or Risky Cryptographic Algorithm
- Improper Restriction of Excessive Authentication Attempts
- Use of a One-Way Hash without a Salt

Reference: <a href="http://cwe.mitre.org/top25/#Brief">http://cwe.mitre.org/top25/#Brief</a>

### 35 Classic Mistakes\*

People-Related Mistakes	Process-Related Mistakes	Product-Related Mistakes	Technology-Related Mistakes
<ol> <li>Undermined motivation</li> <li>Weak personnel</li> <li>Uncontrolled problem employees</li> <li>Heroics</li> <li>Adding people to a late project</li> <li>Noisy, crowded offices</li> <li>Friction between developers and customers</li> <li>Unrealistic expectations</li> <li>Lack of effective project sponsorship</li> <li>Lack of stakeholder buy-in</li> <li>Lack of user input</li> <li>Politics placed over substance</li> <li>Wishful thinking</li> </ol>	<ol> <li>Overly optimistic schedules</li> <li>Insufficient risk management</li> <li>Contractor failure</li> <li>Insufficient planning</li> <li>Abandonment of planning under pressure</li> <li>Wasted time during the fuzzy front end</li> <li>Shortchanged upstream activities</li> <li>Inadequate design</li> <li>Shortchanged quality assurance</li> <li>Insufficient management controls</li> <li>Premature or too frequent convergence</li> <li>Omitting necessary tasks from estimates</li> <li>Planning to catch up later</li> <li>Code-like-hell programming</li> </ol>	<ul> <li>28. Requirements gold-plating</li> <li>29. Feature creep</li> <li>30. Developer gold-plating</li> <li>31. Push me, pull me negotiation</li> </ul>	<ul> <li>32. Silver-bullet syndrome</li> <li>33. Overestimated savings from new tools or methods</li> <li>34. Switching tools in the middle of a project</li> <li>35. Lack of automated source-code control</li> </ul>

<sup>\*</sup> This material is Copyright © 1996 by <u>Steven C. McConnell</u>. All Rights Reserved.

### Advices \*

- Never stop learning.
- Do Programming ... a LOT!
- Communication is critical
- Learn how to WRITE in English (words, not code) COMMUNICATION:
  - Blog
  - Active in community (any community)
  - Speak to real people
- Under promise, over deliver.
- Make stuff (working ones, for real people)
- "I was wrong."
- If it is not **tested** it doesn't work. If tested, it does not guarantee that it works what it should do
- Learn Microeconomics\* (soon or later, it goes on money side)
  - And it helps to understand business

<sup>\*</sup> http://www.removingalldoubt.com/PermaLink.aspx/a32977e2-cb7d-42ea-9d25-5e539423affd "Fatherly Advice to New Programmers", Chuck Jazdzewski

<sup>\*\*</sup> http://www.joelonsoftware.com/articles/StrategyLetterV.html

#### Recommended Literature

- Code Complete 2<sup>nd</sup> Edition
   Steve McConnel
- The Pragmatic Programmer: From Journeyman to Master,
   Andrew Hunt, David Thomas
- The Mythical Man-Month: Essays on Software Engineering, Anniversary Edition,
   Frederick P. Brooks
- 24 Deadly Sins of Software Security,
   Michael Howard, David LeBlanc, John Viega
- <u>Refactoring: Improving the Design of Existing Code</u>
   Martin Fowler, John Brant, William Opdyke, Don Roberts
- Rapid Development: Taming Wild Software Schedules
   Steve McConnel
- <u>Design Patterns: Elements of Reusable Object-Oriented Software</u>
   Erich Gamma, Richard Helm, Ralph Johnson, John M. Vlissides

#### **COMMERCIAL PROGRAMMING**

## Desktop Application (example)

- Prerequisite check (and install)
  - OS version + service pack (check for minimal)
  - Mandatory OS components
  - Java runtime
  - Net Framework
- Installation
  - As well under limited (non-admin) account
- Registration (machine signature)
- Desktop Application for something
- Error Logging
  - Remote Error Reporting
- Update
  - Backward compatibility (keep user data)
- Customer Support

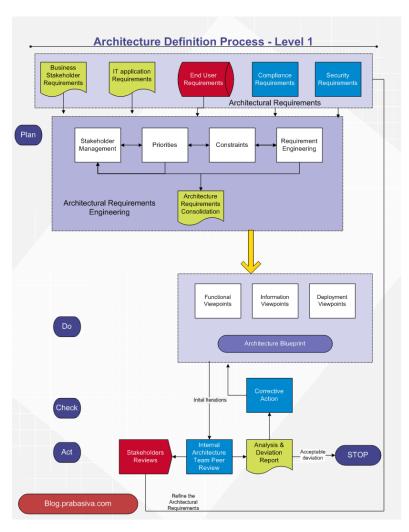
### Commercial programming

- You don't get paid to program, you get paid to ship. Be good at your job\*
- Write software which will be used by someone (or that people will actually want to use)\*\*
- It's all about what your code will do for the end user and not about how you did it
- All Programming is Maintenance Programming

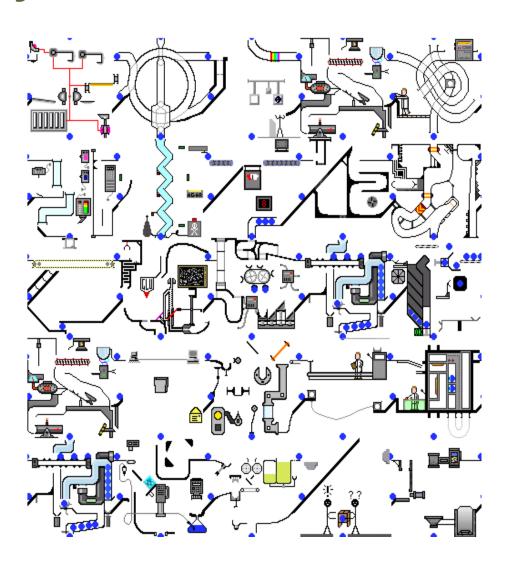
<sup>\* &</sup>lt;a href="http://www.removingalldoubt.com/PermaLink.aspx/a32977e2-cb7d-42ea-9d25-5e539423affd">http://www.removingalldoubt.com/PermaLink.aspx/a32977e2-cb7d-42ea-9d25-5e539423affd</a> - Fatherly Advice to New Programmers, Chuck Jazdzewski

<sup>\*\* &</sup>lt;a href="http://www.skrenta.com/2007/01/market\_engineering.html">http://www.skrenta.com/2007/01/market\_engineering.html</a> - How to Ship Code and Influence People, Rich Skrenta

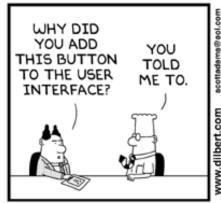
## Software System

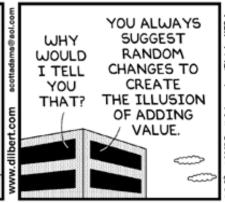


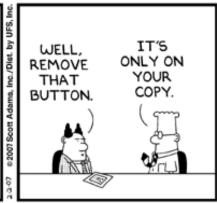
## Real System



### Real Problems ©







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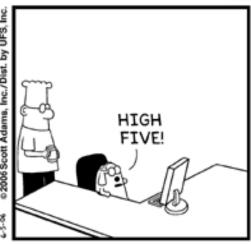
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### More Real Problems ©







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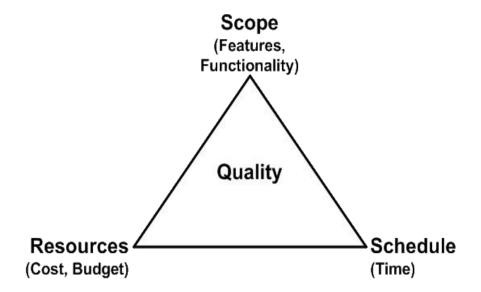


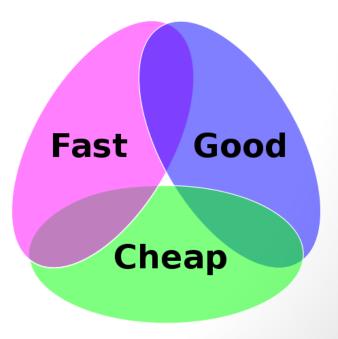
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### Iron Triangle





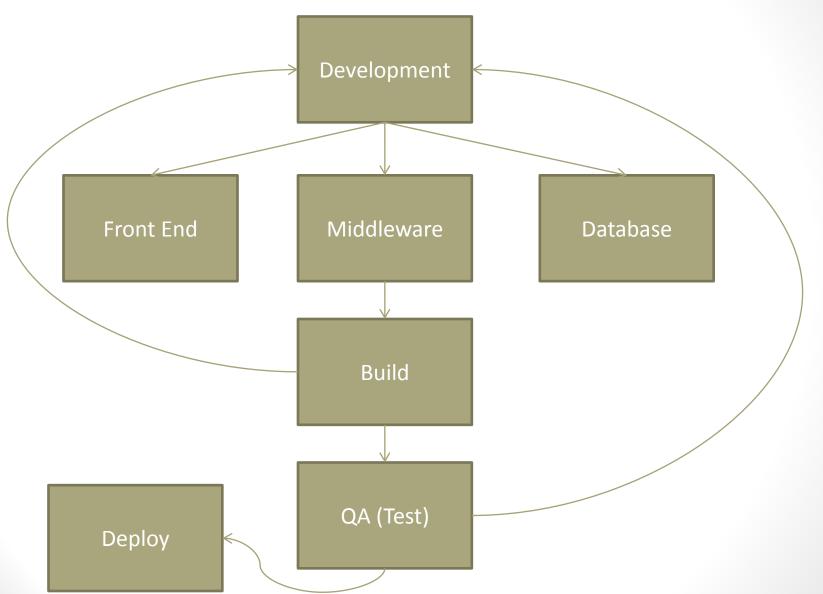
# [Poll] Most important thing to deliver:

- 1. Operating system (Linux, Windows, OSX)?
- 2. Programming ideology (Commercial, Open Source)?
- 3. Language type (interpreted / compiled)?
- 4. Framework?
- 5. Specific language (Java, C, C++, C#, Ruby, Python ...)?
- 6. Right software development philosophy (Waterfall, XP, Agile, Scrum)? Right set of software development tools (Source Code Control System, Build system, Testing Framework ...)?

## Most important thing to deliver:

# TEAM

# Software Factory



# How Good Your Team Is? (technology)

- Do you use source code control system?
- Can you make a build in one step?
- Do you make daily builds?
- Do you have a bug database?
- Do you fix bugs before writing new code?
- Do you have an up-to-date schedule?
- Do you have a spec?

#### How Good Your Team Is For You?

- •Do you respect your coworkers?
- •Do you like your coworkers?

### Teams – Real Life Problems

- Personality Problems
- Distributed Team (communication issues)
- Split Responsibility (unknown owner)
- Duplication of code / functionality (missing design)
- Knowledge Sharing (Wiki / Stack Overflow / Bug Tracking tools)
- No clear lines of Reporting
- Noise

### Documentation

- High Level
- Structured
- Explains details which are higher than code
- Targeted toward human, not toward compiler
- Types:
  - Requirements
  - Design
  - Technical (algorithms, interfaces, APIs) default
  - End User (tutorial, thematic, list or reference doc)
  - Marketing
- "Prior, clear, and extensive documentation is a key element in creating software that can survive and adapt"\*
- Documentation is COMMUNICATION

<sup>\* &</sup>lt;a href="http://queue.acm.org/detail.cfm?id=1053354">http://queue.acm.org/detail.cfm?id=1053354</a> - Comments are More Important than Code

## Documentation (example)

- What is it?
  - Why is written?
  - How it works?
  - Limitations
- Basic Context (where to use it)
- Installation
  - Upgrade
- Configuration
- Examples
- Troubleshooting
- Licensing / Copyright issues
- Good example of documentation: http://www.urlrewriting.net/160/en/documentation.html

### Comments

- Write extensive comments
- Write comments before code itself
- Comment even inline code
- Keep revision history in header of file
- Use auto-generated documentation

## Writing comments:

- Is boring in a first place
- Takes time out of coding time
- Easy to forget to update when signature changes
- "When I wrote this, only God and I understood what I was doing.
   Now, God only knows" \*

<sup>\*</sup> Karl Weierstrass, mathematician

## Examples of Comments ©

```
    // Magic. Do not touch.

    /* You are not meant to understand this */

• // drunk, fix later
return 1; # returns 1
// I'm sorry.

    // I am not sure if we need this, but too scared to delete.

    // I am not responsible of this code.

  // They made me write it, against my will.
• /*
   * You may think you know what the following code does.
   * But you don't. Trust me.
   * Fiddle with it, and you'll spend many a sleepless
   * night cursing the moment you thought you'd be clever
   * enough to "optimize" the code below.
   * Now close this file and go play with something else.
   */
```

# Examples of Comments (2) ©

https://code.google.com/p/xee/source/browse/XeePhotoshopLoader.m?r=a70d7396356997114b548f4ab2cbd49badd7d285

```
// At this point, I'd like to take a moment to speak to you about the Adobe PSD
// format. PSD is not a good format. PSD is not even a bad format. Calling it
// such would be an insult to other bad formats, such as PCX or JPEG. No, PSD
// is an abysmal format. Having worked on this code for several weeks now, my
// hate for PSD has grown to a raging fire that burns with the fierce passion
// of a million suns.
//
// If there are two different ways of doing something, PSD will do both, in
// different places. It will then make up three more ways no sane human would
// think of, and do those too. PSD makes inconsistency an art form. Why, for
// instance, did it suddenly decide that *these* particular chunks should be
// aligned to four bytes, and that this alignment should *not* be included in
// the size? Other chunks in other places are either unaligned, or aligned with
// the alignment included in the size. Here, though, it is not included. Either
// one of these three behaviors would be fine. A sane format would pick one.
// PSD, of course, uses all three, and more.
```

# Examples of Comments (3) ©

```
// Trying to get data out of a PSD file is like trying to find something in the
// attic of your eccentric old uncle who died in a freak freshwater shark
// attack on his 58th birthday. That last detail may not be important for the
// purposes of the simile, but at this point I am spending a lot of time
// imagining amusing fates for the people responsible for this Rube Goldberg of
// a file format.
// Earlier, I tried to get a hold of the latest specs for the PSD file format.
// To do this, I had to apply to them for permission to apply to them to have
// them consider sending me this sacred tome. This would have involved faxing
// them a copy of some document or other, probably signed in blood. I can only
// imagine that they make this process so difficult because they are intensely
// ashamed of having created this abomination. I was naturally not gullible
// enough to go through with this procedure, but if I had done so, I would have
// printed out every single page of the spec, and set them all on fire. Were it
// within my power, I would gather every single copy of those specs, and launch
// them on a spaceship directly into the sun.
// PSD is not my favorite file format.
```

## Comments: HOWTO

- MAKE CODE SELF EXPLANATORY (so that you do not need to write comments) by using:
  - Same coding standard across team
  - Good variable names
  - Write / re-write / refactor code so that speaks for itself
- Use comments to communicate ideas to other HUMAN BEINGS\*
- Good comments -> you have to be good writer
- Good comment answer on "Why" (... is this algorithm / idea used) and not on "What" (... is going on in code) or "How" (.. is done)

<sup>\* &</sup>lt;a href="http://www-cs-faculty.stanford.edu/~knuth/lp.html">http://www-cs-faculty.stanford.edu/~knuth/lp.html</a> - Literate Programming, Donald E. Knuth

## Comments: Example

```
First:
Initial:
                               // square root of n with Newton-Raphson
                               approximation
r = n / 2;
while (abs(r - (n/r)) > t) \{ r = n / 2;
   r = 0.5 * (r + (n/r));
                              while ( abs(r - (n/r)) > t ) {
                                r = 0.5 * (r + (n/r));
System.out.println( "r = " + r );
                               System.out.println( "r = " + r );
Final:
private double SquareRootApproximation(n) {
  r = n / 2;
  while ( abs(r - (n/r)) > t ) {
    r = 0.5 * (r + (n/r));
  return r;
System.out.println( "r = " + SquareRootApproximation(r) );
```

50

# CV, Hiring, Interview – Disclaimer!

- Strictly personal view
- Based on previous personal experience
- Take this "as is" without any warranty that it will work with other employer
- I don't want to say "this is right approach" but this is my current approach!

## How to present yourself

- How to write CV / Resume
- Cover letter (application letter)
- Examples ☺
- Recommendation letters
- References

### CV!= Resume

- There are several differences between a curriculum vitae and a resume.
- A Curriculum Vitae is usually longer (two or more pages) than resume
- When asking for a job in Europe, the Middle East, Africa, or Asia, expect to submit a CV rather than a resume.
- Some of personal information on a curriculum vitae that would never be included on an American resume, such as date of birth, nationality and place of birth.
- United States law on what information job applicants can be asked to provide does not apply outside the country.

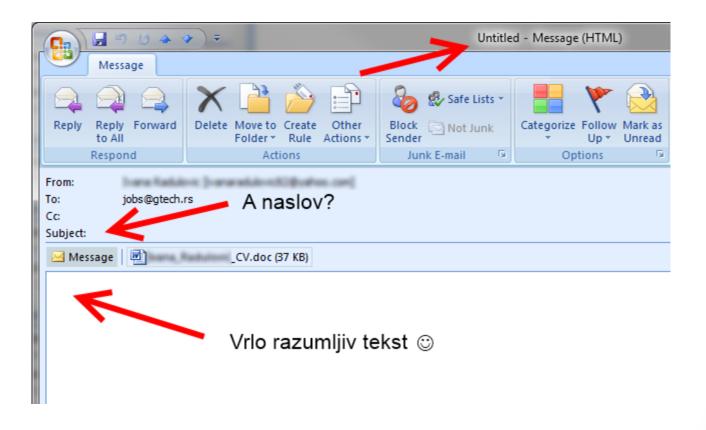
## CV (1)

- Curriculum vitae should include:
  - your name
  - contact information
  - education
  - skills
  - experience.
- In addition to the basics, a CV includes:
  - research and teaching experience
  - publications
  - grants and fellowships
  - professional associations and licenses
  - awards
  - and other information relevant to the position you are applying for.
- Start by making a list of all your background information, then organize it into categories. Make sure you include dates on all the publications you include.

# CV (2) (practicalities)

- CV
  - Universal format (PDF)
  - If not PDF, make it as an archive (7-zip, Zip)
  - CV according to job you are applying (emphasize elements important for that position)
  - Content:
    - No more than two page
    - No grammar or spelling errors
    - Live references (work sites and/or proper mail of your contacts)
  - UP TO DATE!
  - UP TO DATE!

## CV - Bad (1)



# CV - Bad (2)

From: Stasa

To: gtech-jobs@gtech.rs

Cc:

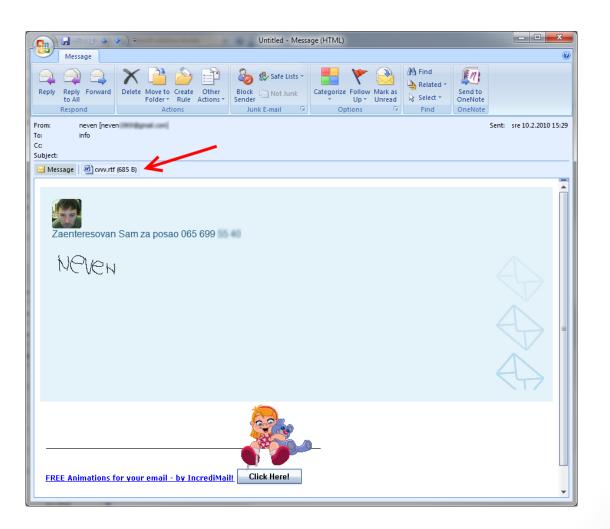
Subject: prijava za posao programera

Prijavljujem se za posao programera..... Broj mog telefona je 064 - 4385

puno pozdrava.....

Stasa

## CV - Bad (3: Mail)



## CV - Bad (3: Attachment)

12/14/2009

v Neven

NEVEN IZ KIKINDE

ZANIMANJE - IT TEHNISON

SERVISER RACUNARA I MREZA I PROGRAMER

A+ SERTIFIKAT

o65699

# Checking references and recommendations

- References and recommendations are very important
  - Professors / Teachers
  - Former Bosses
  - Former Colleagues
  - Users of your previous products / services
- Those gets checked and people get contacted
- Programming community (in Serbia) is small –
   make note of that

## How to apply for work?

- Preparation
  - Get informed about potential employer: web site, products, structure and public image
  - Be sure to know for what you are applying to if there is not enough info in advertisement, dare to ask for more
- Application (Cover) Letter
  - From your mail address
  - On intended address
  - Make sure that note position you are targeting for
- Recommendations
- References

# Selection of candidates based on CV

- How it really works (in practice)?
- Sometimes just quick overview of CV (few seconds), sometimes very detailed
- Criteria
  - Internal (from company) recommendations and information
  - Skills
  - Ability to Learn (stuff already done)
  - Personal (team working, communication, languages...)
  - Experience
  - Education
  - External info

## Interview - Preparation

- Get informed (good!) about potential employer
  - Official sources (web sites, materials, search, financial records)
  - Unofficial sources (current or ex-employees etc.)
- Get your (minimal) terms under you would accept position with that company
- Clear idea for which position you are applying to and under which conditions
- Prepare list of not-so-comfortable list of questions (for potential employer) as well list of your answers on similar questions

### Interview

- Usually: Two parts + two circles
  - Personality and team member roles
  - Expert (for area of expertise required for specific role)
- Sometimes very informal
- Interview is bidirectional be prepared to ask, not just to be asked
- Expect pressure and be prepared to it
- Be ready to say "No"

## Interview – About Money

- Money is very important factor (but not only one!)
- Know price of your work
- Do not be ashamed to ask that price
- Prepare list of minimal conditions which you expect employer to fulfill
- Be sure that both sides are fully aware about agreed conditions! (repeat and verify before leaving final discussion and making decision)

## Final decision

- Huh... this is hard to explain
- We consider all previously noted elements:
  - CV
  - All conversations
  - View of other colleagues involved in your interview
- If we can't decide... sometimes we follow our intuition

## Where not to look for work

• The leading association in the systems for payment online is looking for: The senior programmer with at least 5 years of experience. The candidate has to have a **complete and total knowledge** of the **programs languages** which have been **indicated**, and has to prove that he can handle these projects alone. The candidate has to deal with European and American reality for that reasons he should speak and write fluently english. Experience in the sector of mobile telephones is the most important advantage.

The program languages (5 years experience)

- HTML, XHTML, DHTML / XML, XSL, XSLT, DOM.
- CSS1 & 2, Javascript. / Microsoft ASP (ADO2 & ADO3), ASP.NET
- PHP 3, 4 & 5. / Sun Java Server Pages (JSP & Servlet).
- MySQL, Microsoft Access & Microsoft SQL Server 2000

The candidate should also have the good knowledge of the things such as -web server, ftp and mail server, nntp

- Microsoft IIS4 & 5. / Linux
- Apache v1.XX & v2.XX. / Apache Tomcat 4.XX

## Where to look for work





(SugarCRM, Openbravo ERP, PSTextil ERP)











## References

- Steve McConnell, <a href="http://www.stevemcconnell.com/">http://www.stevemcconnell.com/</a>
- Joel Spolsky, <a href="http://www.joelonsoftware.com/">http://www.joelonsoftware.com/</a>
- Scott Guthrie, <a href="http://weblogs.asp.net/scottgu/">http://weblogs.asp.net/scottgu/</a>
- Jeff Atwood, <a href="http://www.codinghorror.com">http://www.codinghorror.com</a>
- Dejan Vesić,
  - http://www.vesic.org/matfplus/
  - Twitter: <u>@Vesic</u>
  - LinkedIn: <a href="http://rs.linkedin.com/in/dejanvesic">http://rs.linkedin.com/in/dejanvesic</a>

# Q&A

