

**Indian Linux Users' Group, Chennai (ILUGC)**

in association with

**Thiagarajar College of Engineering, Madurai**

presents

# **Careers with GNU/Linux**



by

**Shakthi Kannan** MS

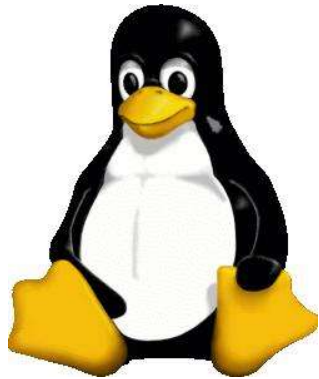
Thiagarajar College of Engineering, Madurai

# Introduction

- **GNU/Linux/Free Software Movement**
  - **Free Software Foundation (FSF)**
  - ***Free as in Freedom – Richard Stallman's Crusade for Free Software***  
<http://www.oreilly.com/openbook/freedom/>
  - ***The Cathedral and the Bazaar - Eric Steven Raymond***  
<http://www.catb.org/~esr/writings/cathedral-bazaar/cathedral-bazaar/>
- **GNU General Public License**
- **GNU/Linux distributions**  
**Red Hat, Fedora Core, SuSE, Mandrake, Debian, Slackware**  
**Knoppix, Gnoppix, Gentoo**  
<http://www.distrowatch.com/>
- **Linux User Groups**  
<http://www.linux.org/groups/>

*free*  
SOFTWARE  
FOUNDATION

# Industry Domains



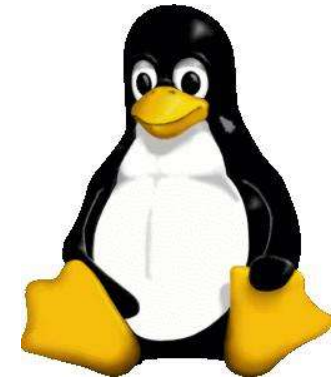
**Bioinformatics**  
**Computer Networks**  
**Gaming industry**  
**Embedded systems/VLSI**  
**Operating Systems**  
**Research**  
**Service industry**  
**Systems development**  
**System/network administration**  
**Teaching**  
**Telecommunications**



# Job Designation

- **Application Developer**
- **Graphics Designer**
- **Database Programmer**
- **Embedded Systems Engineer**
- **Freelance Writer**
- **Professor/Researcher**
- **Marketing Specialist**
- **Consultant**
- **Network/System Administrator**
- **VLSI Engineer**
- **Systems Developer**
- **Web Developer**

GNU's Not UNIX



# Application Developer

- **C, C++, Java, Fortran, Cobol, Lisp**
- **Perl, Python, Bash**
- **Tcl/Tk, GTK, Qt**



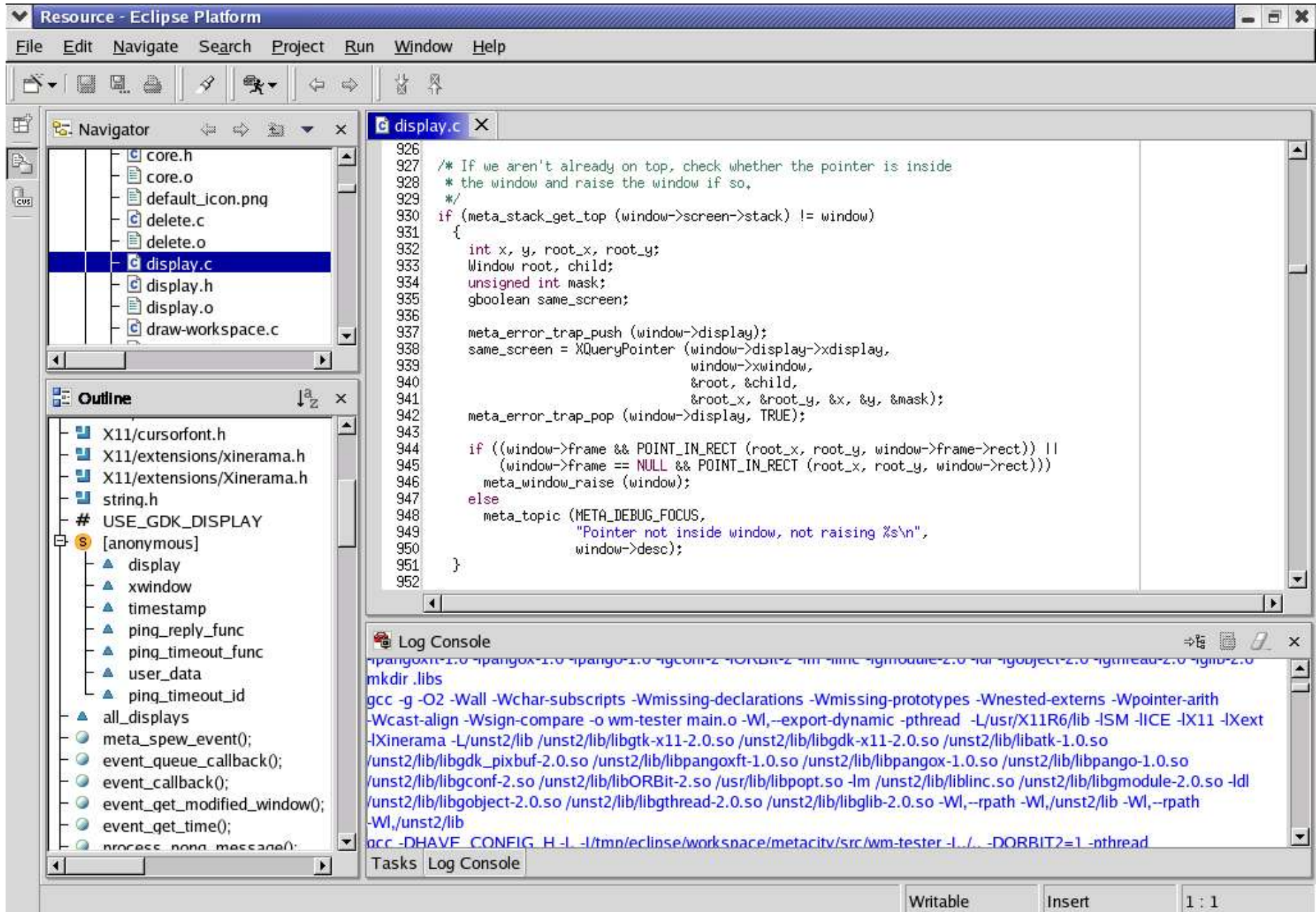
**<http://sourceforge.net>**

**<http://freshmeat.net>**

## Coursework

- **CS131 Programming and Data Structures**
- **CS231 Introduction to Analysis of Algorithms**
- **CS237 Object Oriented Programming**
- **CS338 Software Engineering**
- **CS433 Object Oriented System Analysis and Design**

# Eclipse IDE



Source: <http://ometer.com/eclipse-shots/eclipse-metacity.png>

# Database Programmer

- **Webhosting, databases**
- **MySQL, PostgreSQL, ORACLE**
- **Java, swing, JDBC**
- **LAMP: Linux Apache MySQL PHP**

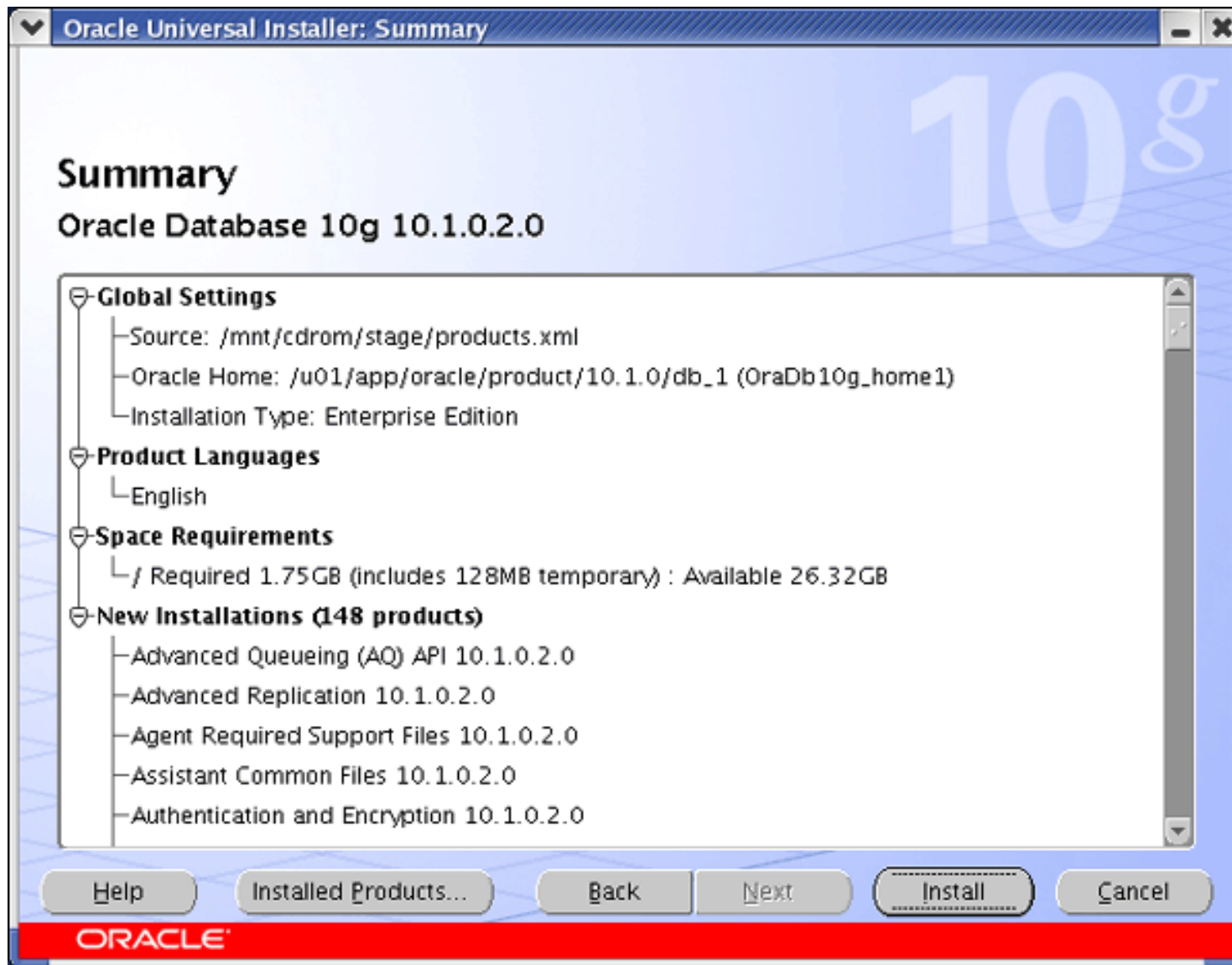
*GNU/Linux SQL Databases and Tools*

<http://linas.org/linux/db.html>

## Coursework

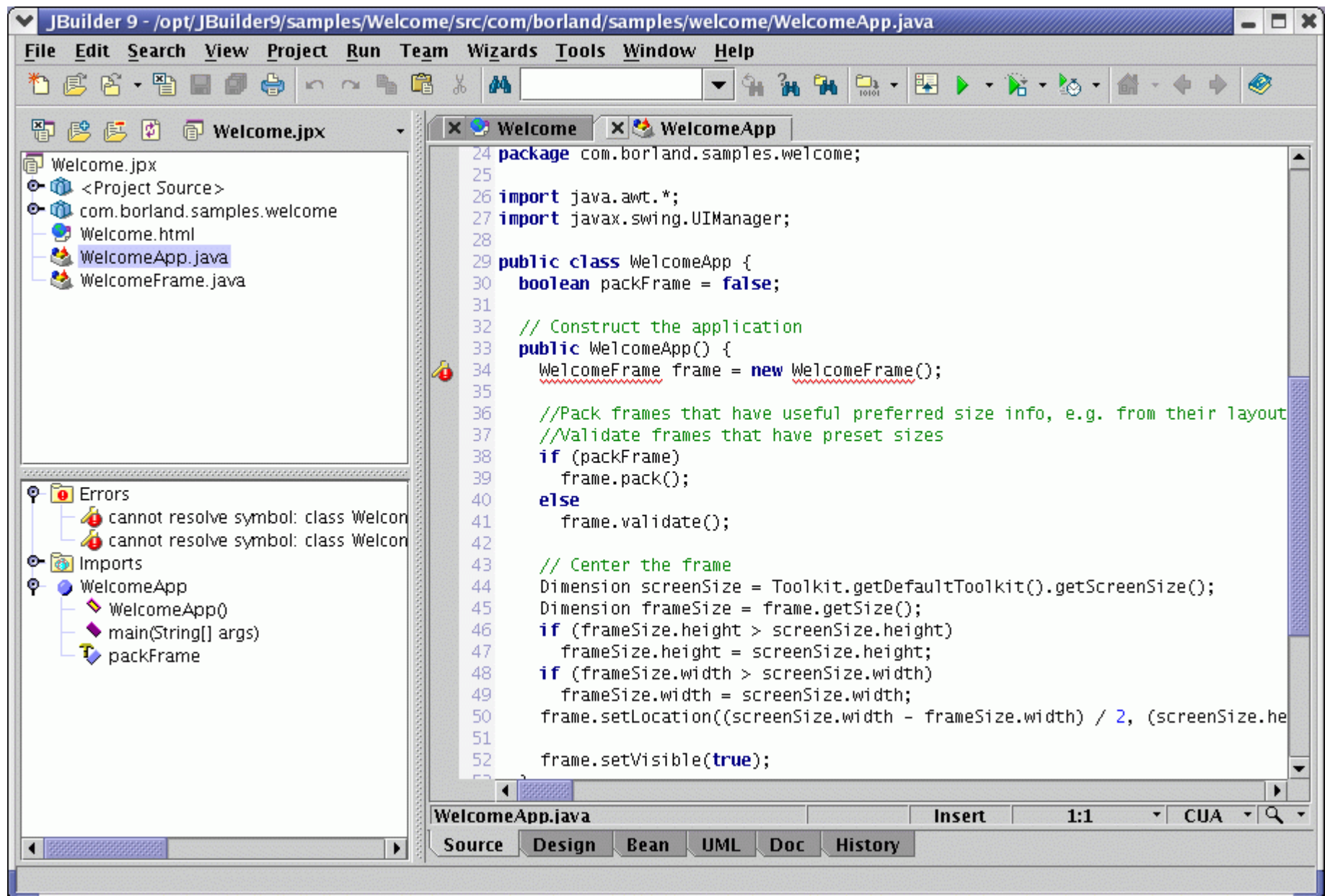
- **CS234 Database Management Systems**
- **CS338 Software Engineering**
- **CS433 Object Oriented System Analysis and Design**
- **CS432 Web Technology**

# ORACLE Database 10g on GNU/Linux





# Borland JBuilder 9 Enterprise on GNU/Linux



Source: <http://www.yolinux.com/TUTORIALS/images/JBuilder9-screenshot.gif>

# Business/Marketing

## Consultant

- GNU/Linux deployment
- Migration

*Linux Consultants Guide*

<http://www.faqs.org/docs/consult/>

## Marketing Specialist

- Market research
- Advertising
- GNU/Linux Promotions
- Public relations

## Freelance Writer

- Command of language
- Articles, publications, books
- <http://www.linuxjournal>
- <http://slashdot.org/>

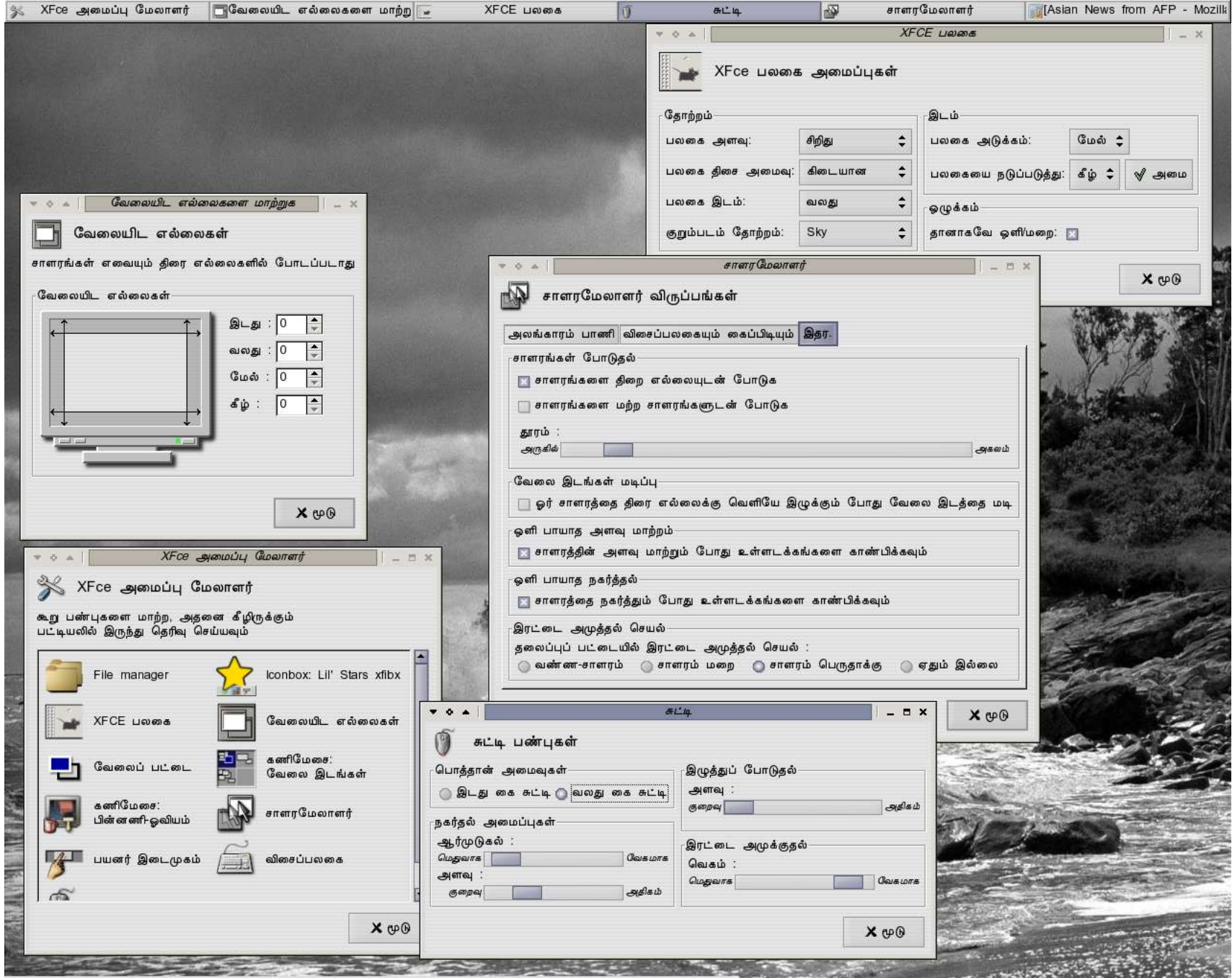
# OpenOffice

The screenshot displays the OpenOffice 1.1.2-en interface. The main window shows a table with the following data:

Identifier	Type	Address	Annote	Author	Booktitle	Chapter	Edition	Editor	Howp
BOR02a	1			Borges, Malte; Schumacher, Jörg					
BOR02b	1			Borges, Malte; Schumacher, Jörg					
BUS00	1			Busch, David D.; Olsen, J.W.					
DAN00	1			Dandenell, Malin; Ek, Jesper					
FAC01	1			Facundo Arena, Hector					
GAE02	1			Gäbler, Rene					
HAB00	1			Habraken, Joe					
JON00	1			Jones, Floyd; Haugland, Solveig					
MOL02	1			Molla, Ricard					
RAP00	1			Rapion, Anne					
RIN01	1			Rinne, Karin					
WAR01a	1			Warner, Nancy D.					

The 'Data Source Administration' dialog box is open, showing the 'General' tab. The 'Name' field is 'Data source 1'. The 'Database type' dropdown menu is open, showing options: jDBC, MySQL, Adabas, jDBC, ODBC, dBase, Text, Spreadsheet, and Address book. The 'Data source URL' field is empty. The 'OK', 'Apply', 'Cancel', and 'Help' buttons are visible at the bottom of the dialog.

# XFCE in Tamil



# VLSI Engineer

- **C**
- **Verilog, VHDL**
- **Alliance VLSI CAD tools**
- **gEDA, vlsi, PCB tool, EE tool,**
- **TkGate, Xcircuit, gerbv, gputils**

## Coursework

- **EE337 Digital Signal Processing**
- **EE334 Integrated Circuits**
- **EE333 Digital Systems**
- **EE340 Microprocessor & Applications**
- **EE350 Computer Architecture**

# Systems Developer

- **Assembly, C**

*Programming from the Ground-Up*

<http://savannah.nongnu.org/download/pgubook/>

- **Device drivers, kernel development**

*Linux Device Drivers*

<http://www.xml.com/ldd/chapter/book/>

- **Compilers, assemblers, emulators, linkers, loaders**

- **Distributed computing, protocol development**

- **Filesystems, clustering, benchmarking**

*GNU/Linux devices*

<http://www.linuxdevices.com>

# Systems Developer

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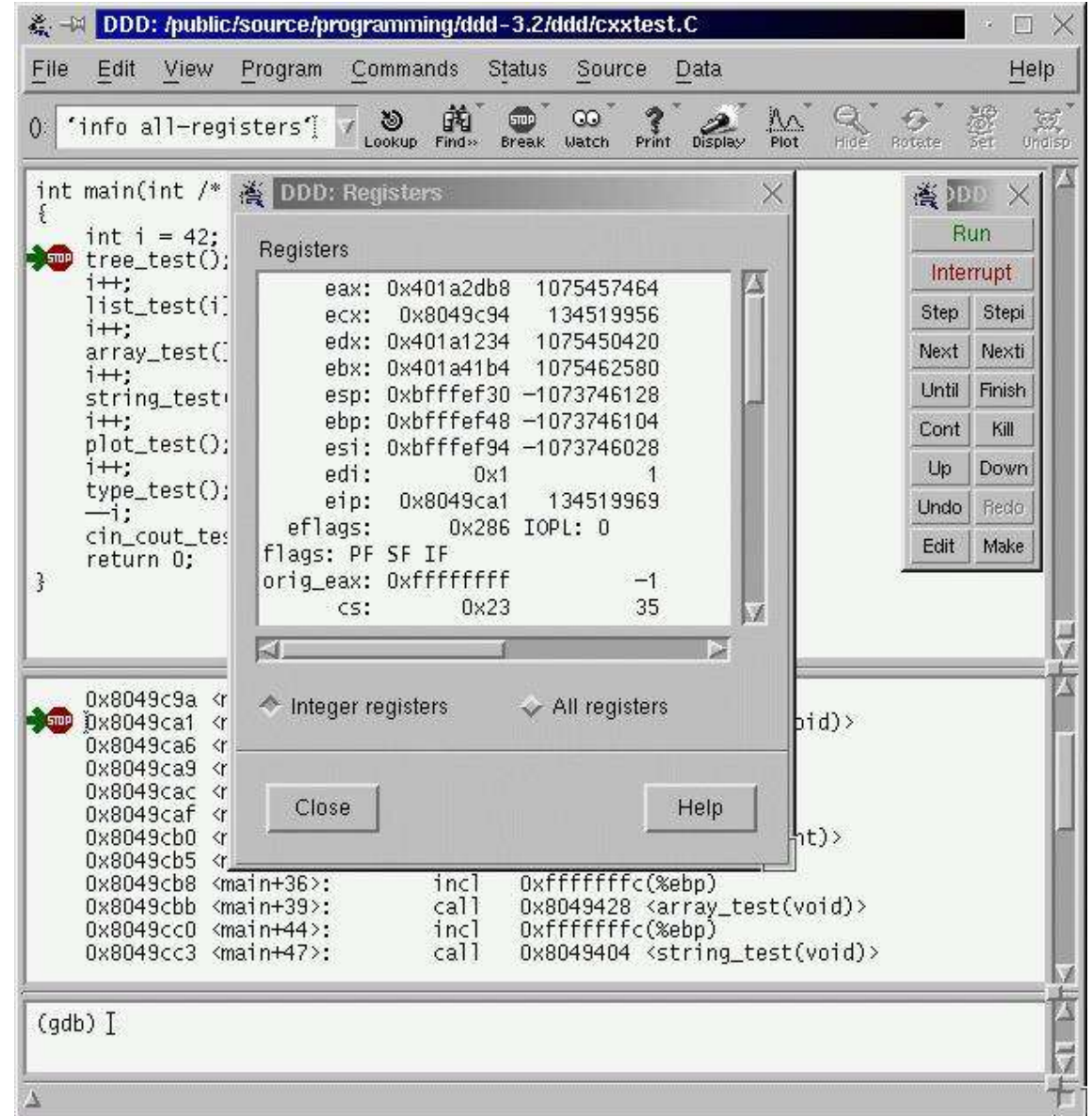
## Coursework

- **CS131 Programming and Data Structures**
- **CS231 Introduction to Analysis of Algorithms**
- **CS232 Digital Systems**
- **CS233 System Software**
- **CS238 Computer Architecture I**
- **CS334 Microprocessors**
- **CS333 Operating Systems**
- **CS340 Computer Architecture II**
- **CS337 Principles of Compiler Design**
- **CS338 Software Engineering**



# GNU/Linux Software Tools

- GNU C Compiler (gcc)
- GNU Assembler (gas)
- GNU C++ compiler (g++)
- GNU Debugger (gdb)
- Data Display Debugger (ddd)
- Java SDK
- Python
- Tcl





# Professor/Researcher

## Professor

- Command of language
- Universities/colleges/schools
- Lectures/training
- Conferences/seminars/workshops

## Researcher

- Focussed
- Conferences/seminars/workshops
- Papers, publications, journals
- Academia/industry research

# Systems/Network Administrator

- **Scripting** – Bash, Perl, Python
- **Services** – Apache, BIND, DNS, DHCP, sendmail, LDAP
- **Skills**
  - **Installation, configuration, monitoring, security**
  - **Backup and recovery procedures, troubleshooting,**
  - **Communication skills**

<http://www.tldp.org/HOWTO/HOWTO-INDEX/categories.html>

## Coursework

- **CS339 Computer Networks**
- **CS431 Network protocols, management and security**
- **CS432 Web Technology**

# SuSE Linux Install

The screenshot shows the YaST (Yet another Setup Tool) interface for Network Configuration. On the left, a sidebar lists installation steps: Base Installation (Language, Installation Settings, Perform Installation) and Configuration (Perform Installation, Root Password, Network, Online Update, Users, Clean Up, Release Notes, Device Configuration). The main window is titled 'Network Configuration' and has two radio buttons: 'Skip Configuration' (unselected) and 'Use Following Configuration' (selected). Below this, there are four sections: 'Firewall' (enabled, external interface eth-id-00:50:ba:1b:62:78, SSH disabled, no additional services), 'Network Interfaces' (D-Link DFE-530TX rev A with DHCP, host name, name servers, and search list set by DHCP), 'DSL Connections' (not detected), and 'ISDN Adapters' (not detected). At the bottom of the main window are buttons for 'Change...', 'Back', 'Abort', and 'Next'. The YaST logo is in the top left, and the SuSE logo is in the top right.

**YaST**

**Base Installation**

- ✓ Language
- ✓ Installation Settings
- ✓ Perform Installation

**Configuration**

- ✓ Perform Installation
- ✓ Root Password
- ➔ **Network**
- Online Update
- Users
- Clean Up
- Release Notes
- Device Configuration

**Network Configuration**

Skip Configuration

Use Following Configuration

**Firewall**

- Firewall is enabled
- External Interfaces: eth-id-00:50:ba:1b:62:78
- SSH: disabled
- Additional Services: none

**Network Interfaces**

- D-Link DFE-530TX rev A  
Configured with DHCP.
- Host Name: set by DHCP
- Name Servers: set by DHCP
- Search List: set by DHCP

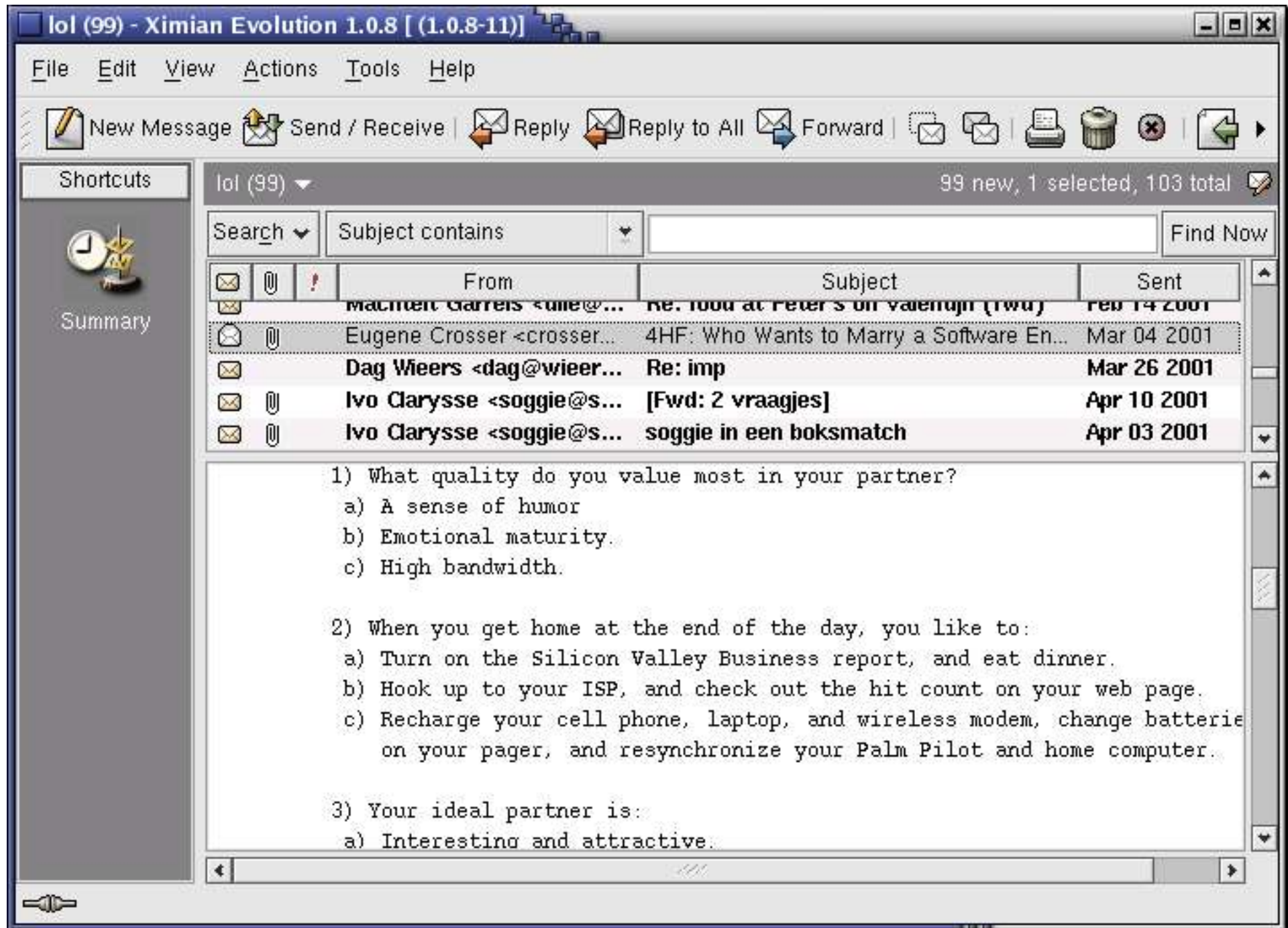
**DSL Connections**

- Not detected.

**ISDN Adapters**

- Not detected.

# Ximian Evolution



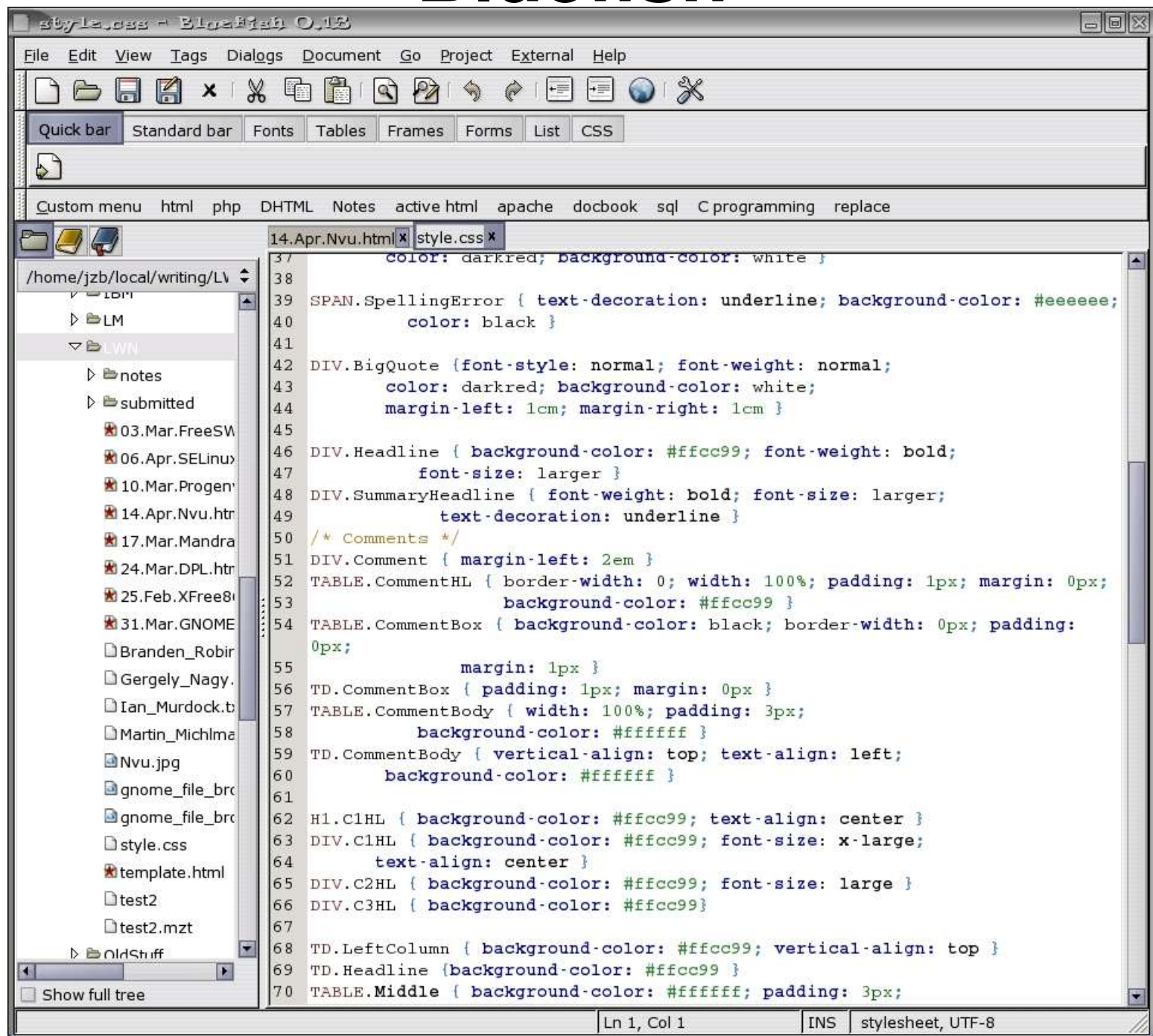
# Web Developer

- XML/SGML, Perl, SQL
- HTML, XHTML, CSS
- LAMP (Linux, Apache, MySQL, PHP)
- <http://www.devshed.com/>
- <http://www.linuxforum.com/forums/index.php?showtopic=53452>

## Coursework

- CS234 Database management Systems
- CS431 Network protocols, management and security
- CS432 Web Technology

# Bluefish



Source: <http://lwn.net/Articles/80573/>

# Graphics Designer

- **Creativity**
- **Animation: moho, maya, blender3D**
- **Imaging software: GIMP, openrender, DrQueue, YafRay**
- **Audio editing: wired, muse, ardour, rosegarden**
- **<http://www.linuxforum.com/forums/index.php?showtopic=53452>**

## Coursework

- **ge134 Engineering graphics**
- **cs239 Interactive computer graphics**
- **CS432 Web Technology**

# Rosegarden

The screenshot displays the Rosegarden music software interface. The main window, titled "/home/cannam/music/rg/squibble.rg - Rosegarden", features a menu bar (File, Edit, Composition, Segments, Tracks, Tools, Settings, Help) and a toolbar with various editing tools. On the left, there are two panels: "Segment Parameters" (Label: (split), Repeat, Transpose: 0, Quantize: Off, Delay: 0, Colour: Harpsichord) and "Instrument Parameters" (MIDI external device #1, Channel: 1, Percussion, Bank: General MIDI, Program: 7. Harpsichord, and controls for Pan, Chorus, Volume, Reverb, Sustain, and Expression). The central area shows a track list on the left and a piano roll on the right. The track list includes: 6 Recorded guitar, 7 Piano theme, 8 Piano theme 2, 9 <untitled>, 10 Bells, 11 Erhu, 12 <untitled>, 13 <untitled>, 14 <untitled>, and 15 <untitled>. The piano roll is set to C major, 120 BPM, and shows a 6-measure segment. Track 12 is highlighted in green. Below the piano roll, there are tracks for "Standard" and "Timpani". A smaller window titled "squibble.rg - Segment Track #9 - Notation - Rosegarden" is open in the foreground, showing a musical score for a single track with two staves of notation. The notation includes a treble clef, a key signature of one sharp (F#), and a 4/4 time signature. The score shows a sequence of notes and rests, with a measure number "5" visible. The bottom of the interface features a "Rosegarden Transport - Rose" section with a digital display showing "00:01:47.7796", a tempo of "120.000", and a status bar indicating "IN NO EVENTS", "OUT NO EVENTS", "Time: 16800 (8.750s)", "G1", "Ready.", "6 events selected", and "0%".

Source: <http://www.rosegardenmusic.com/images/rg4-0.9.9.png>

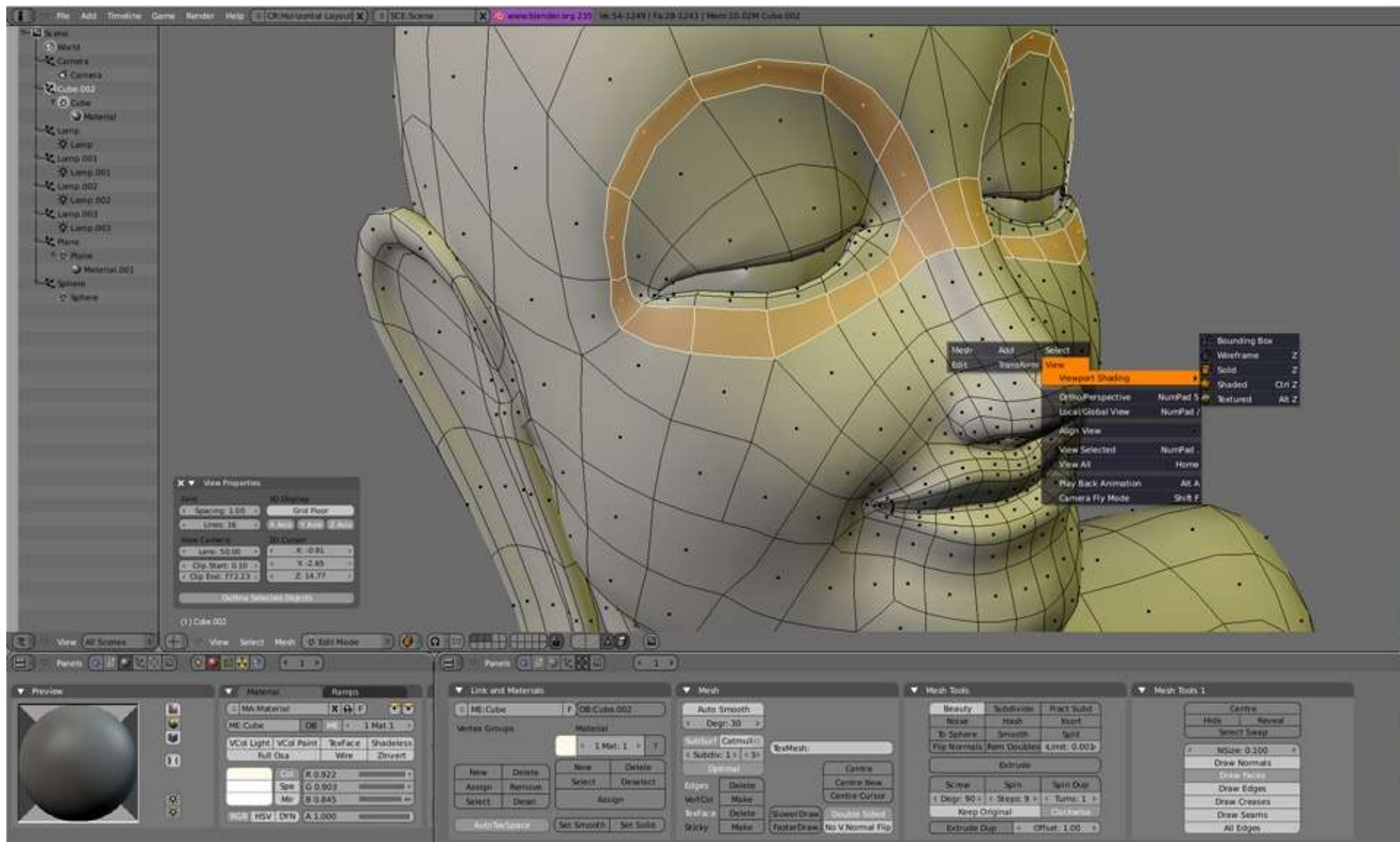


# Blender



Source: <http://blender3d.org/cms/Images.151.0.html>

# Blender



Source: <http://www.blender3d.org/cms/Home.2.0.html>

# Summary

**System/network administration**

**Gaming industry**

**Computer Networks**

**Telecommunications**

**Research**

**Service industry**

**Embedded systems/VLSI**

**Teaching**

**Operating Systems**

**Systems development**

**Bioinformatics**

**Web developer**

**Freelance Writer**

**Embedded Systems engineer**

**Application developer**

**Database programmer**

**Network administrator**

**Professor/Researcher**

**Graphics Designer**

**Systems developer**

**Consultant**

**Marketing Specialist**

**System administrator**

# Reference

[1] B.M.G's Logo Gallery. April 10, 2002.

[http://www.astro.uni-bonn.de/~jbraun/logo\\_gallery/loggal.html](http://www.astro.uni-bonn.de/~jbraun/logo_gallery/loggal.html)

[2] Linux logos and mascots. 2005.

<http://www.linux.org/info/logos.html>

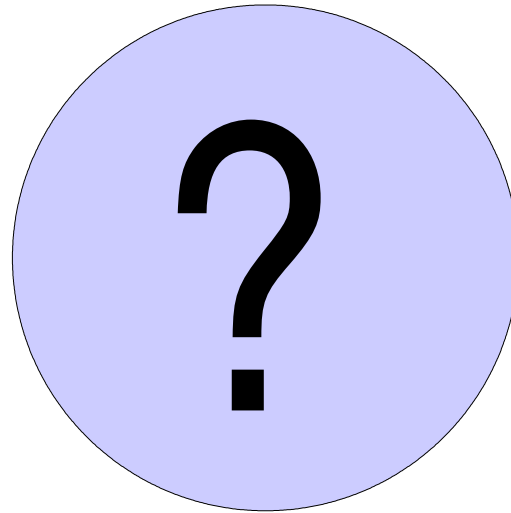
[3] The Linux Documentation Project. January 04, 2005.

<http://www.tldp.org/HOWTO/HOWTO-INDEX/categories.html>

[4] GNU Art Gallery. 2005.

<http://www.gnu.org/graphics/graphics.html>

# Question Answer Session





**Thank You**

