Technology in Action

Technology in Focus:
Careers in IT
Rewards of Working in Information Technology

• Reasons to work in field of information technology
  – Exciting
  – Ever-changing
  – Attractive to new graduates
IT Workers Are in Demand

• Computer-related jobs expected to be among fastest growing occupations through 2020
• 2013 US News and World Report list of best careers
  – Systems analyst, software developer, and web developer were in top 10
  – Programmer, IT manager, and systems administrator in top 25
IT Workers Are in Demand

• National Association of Colleges and Employers (NACE)
  – Average starting salary for computer science majors is $64,000
  – Fourth highest on list

• Number of computer science students has been increasing
  – Increased by 29.2% in 2012
  – Shortages are still projected over 5-10 years
## High-Growth IT Jobs

<table>
<thead>
<tr>
<th>OCCUPATION</th>
<th>MEDIAN PAY ($)</th>
<th>TOP PAY ($)</th>
<th>10-YEAR GROWTH RATE (%)</th>
<th>TOTAL NEW JOBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software developers</td>
<td>90,530</td>
<td>143,330</td>
<td>30</td>
<td>270,900</td>
</tr>
<tr>
<td>Computer systems analysts</td>
<td>77,740</td>
<td>119,070</td>
<td>22</td>
<td>120,400</td>
</tr>
<tr>
<td>Computer support specialists</td>
<td>46,260</td>
<td>76,970</td>
<td>18</td>
<td>110,000</td>
</tr>
<tr>
<td>Network and computer systems administrators</td>
<td>69,160</td>
<td>108,090</td>
<td>28</td>
<td>96,600</td>
</tr>
<tr>
<td>Information security analysts, web developers, and computer network architects</td>
<td>75,660</td>
<td>119,940</td>
<td>22</td>
<td>65,700</td>
</tr>
<tr>
<td>Computer programmers</td>
<td>71,380</td>
<td>114,180</td>
<td>12</td>
<td>43,700</td>
</tr>
<tr>
<td>Database administrators</td>
<td>73,490</td>
<td>115,660</td>
<td>31</td>
<td>33,900</td>
</tr>
<tr>
<td>Computer and information research scientists</td>
<td>100,660</td>
<td>153,120</td>
<td>19</td>
<td>5,300</td>
</tr>
</tbody>
</table>
IT Jobs Pay Well

• Salaries depend on:
  – Experience level
  – Geographic location
  – Size of employer

• Research salaries in geographic area where you expect to work
  – Salary.com
IT Jobs Are Not Going “Offshore”

• There is risk of jobs being outsourced

• Outsourcing - Business hires third-party firm to provide services

• Offshoring - Outsourcing firm is outside United States

• Outsourcing and offshoring can produce cost savings
IT Jobs Are Not Going “Offshore”

- Outsourcing and offshoring don’t always deliver expected cost savings
  - Demand has led to increased wages
  - Communications problems
  - Cultural differences
  - Code needs extensive reworking
  - Data can be less secure
IT Jobs Are Not Going “Offshore”
Jobs That Will Stay in U.S.

1. Customer interaction
   – Require direct input from customers
   – Systems with which customers interface daily

2. Enablers
   – Jobs involve getting key business projects accomplished
   – Require technical and good people skills
### IT Jobs Are Not Going “Offshore”
Jobs That Will Stay in U.S.

#### 3. Infrastructure jobs

- Fundamental to moving and storing information U.S.-based employees need to do their jobs

<table>
<thead>
<tr>
<th>CUSTOMER INTERACTION</th>
<th>ENABLERS</th>
<th>INFRASTRUCTURE JOBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web application developers</td>
<td>Business process analysts</td>
<td>Network security</td>
</tr>
<tr>
<td>Web interface designers</td>
<td>Application developers (when customer interaction is critical)</td>
<td>Network installation technicians</td>
</tr>
<tr>
<td>Database and data warehouse designers/developers</td>
<td>Project managers (for systems with customers and business users who are located predominantly in the United States)</td>
<td>Network administrators (engineers)</td>
</tr>
<tr>
<td>Customer relationship management (CRM) analysts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enterprise resource planning (ERP) implementation specialists</td>
<td></td>
<td>Wireless infrastructure managers and technicians</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Disaster recovery planners and responders</td>
</tr>
</tbody>
</table>
Women Are in High Demand in IT Departments

• Women make up about 25% of IT workforce
• Many IT departments are seeking to diversify their workforces
• Salary gender gap is smaller than in most other professions
You Have a Choice of Working Location

• IT jobs are available in various settings
  – Office-based
  – Field-based
  – Project-based
  – Home-based

• Look for job that suits tastes and requirements
## Where Do You Want to Work?

<table>
<thead>
<tr>
<th>TYPE OF JOB</th>
<th>LOCATION AND HOURS</th>
<th>SPECIAL CONSIDERATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office-based</td>
<td>Report for work to the same location each day and interact with the same people on a regular basis; requires regular hours of attendance (such as 9 a.m. to 5 p.m.)</td>
<td>May require working beyond “normal” working hours, may also require workers to be on call 24/7</td>
</tr>
<tr>
<td>Field-based</td>
<td>Travel from place to place as needed and perform short-term jobs at each location</td>
<td>Involves a great deal of travel and the ability to work independently</td>
</tr>
<tr>
<td>Project-based</td>
<td>Work at client sites on specific projects for extended periods of time (weeks or months)</td>
<td>Can be especially attractive to individuals who like workplace situations that vary on a regular basis</td>
</tr>
<tr>
<td>Home-based (telecommuting)</td>
<td>Work from home</td>
<td>Involves very little day-to-day supervision and requires an individual who is self-disciplined</td>
</tr>
</tbody>
</table>

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You Constantly Meet New Challenges

- Playing field is always changing
- Software and hardware being developed
- Need to keep skills up to date
- Keeps jobs from becoming dull or routine
You Work in Teams

- Not locked in lightless cubicles
- Most don’t work alone
- Involves constant interaction with others on team
- People skills are highly prized
- Good leadership and team-building skills will be used
You Don’t Need to Be a Mathematical Genius

• Some careers involve fair bit of math
• Not mathematically inclined? You can explore many other IT careers
• Employers value creativity, marketing, and artistic style
IT Skills Are Transferable

• Portable from industry to industry
• Can switch without learning a new skill set
• Combining courses makes you more marketable
Challenges of IT Careers

Stress

• Most IT jobs are hectic
• Average work week is 45 hours
• On call for another 24 hours
• Demand for on-call hours has been increasing
  – Need for 24/7 availability
Stress from Multiple Directions

- Texts from 63 customers complaining about new website design
- Marketing department needs new web page by Friday
- Supervisor needs quarterly budget report yesterday!
- Sales staff at annual golf outing in Scottsdale can’t access their sales reports
Challenges of IT Careers

Women Are in the Minority

• Majority of IT jobs filled by men
• Some women feel like they would not fit in
• Some gender bias does exist
  – Some women thrive on challenge
  – Others find it difficult to work in this environment
Challenges of IT Careers
Lifelong Learning Is Required

• To keep up with vast shifts in technology, you might need to:
  – Take training courses
  – Do self-study
  – Take college courses
Choosing Your Realm of IT

• Careers currently available
  – Chief information officer (CIO) has overall responsibility
  – Other responsibilities are split

• Large organizations - Responsibilities are distinct and more narrowly defined

• Small company - People do many jobs
Choosing Your Realm of IT
Working in Development & Integration

Web Development
- Web content creators
- Interface designers
- Web programmers
- Customer interaction technicians
- Social media directors

Systems Development
- Systems analysts
- Programmers
- Project managers
- Technical writers
- Network administrators
- Database developers
Systems Development Careers

- There are many important team members in systems development

- Programmers build the software that solves problems
- Systems analysts document systems and propose solutions
- Project managers supervise, organize, and coach team members
- Database developers ensure data is accessible when it’s needed
Working in Technical Services

• Information systems
  – Network administrators
  – Database administrators (DBAs)
  – Web server administrators
  – Telecommunications technicians

• Support services
  – Helpdesk analysts
  – Computer support technicians
Preparing for a Job in IT

1. Get educated
   - College and university degrees
     • Computer science
     • Management information systems
     • Information technology
   - Technical (or trade) schools
     • Build skills rapidly
     • Qualify for job in specific field
   - Attend degree-granting college or university
2. Investigate professional certifications
   – Provide consistent method of measuring skill levels
   – Software and hardware vendors and professional organizations establish certification standards
• Professional organizations are a great place to learn about careers and meet prospective employers

<table>
<thead>
<tr>
<th>ORGANIZATION NAME</th>
<th>PURPOSE</th>
<th>WEBSITE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Association for Computing Machinery (ACM)</td>
<td>Oldest scientific computing society, maintains a strong focus on programming and systems development</td>
<td>acm.org</td>
</tr>
<tr>
<td>Association for Information Systems (AIS)</td>
<td>Organization of professionals who work in academia and specialize in information systems</td>
<td>aisnet.org</td>
</tr>
<tr>
<td>Association of Information Technology Professionals (AITP)</td>
<td>Heavy focus on IT education and development of seminars and learning materials</td>
<td>aitp.org</td>
</tr>
<tr>
<td>Institute of Electrical and Electronics Engineers (IEEE)</td>
<td>Provides leadership and sets engineering standards for all types of network computing devices and protocols</td>
<td>ieee.org</td>
</tr>
<tr>
<td>Information Systems Security Association (ISSA)</td>
<td>Not-for-profit, international organization of information security professionals and practitioners</td>
<td>issa.org</td>
</tr>
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</table>
Preparing for a Job in IT

3. Get experience
   – Internship or part-time job
   – Colleges allow credit toward degree

4. Do research
   – Learn about company and industry before going on an interview
   – Company website
   – Business Week or CIO magazines
## Resources for Women in IT

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<tr>
<th>ORGANIZATION NAME</th>
<th>PURPOSE</th>
<th>WEBSITE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anita Borg Institute for Women and Technology</td>
<td>Organization whose aim is to “increase the impact of women on all aspects of technology”</td>
<td>anitaborg.org</td>
</tr>
<tr>
<td>Association for Women in Computing (AWC)</td>
<td>A not-for-profit organization dedicated to promoting the advancement of women in computing professions</td>
<td>awc-hq.org</td>
</tr>
<tr>
<td>The Center for Women in Technology (CWIT)</td>
<td>An organization dedicated to providing global leadership in achieving women’s full participation in all aspects of IT</td>
<td>cwit.umbc.edu</td>
</tr>
<tr>
<td>Diversity/Careers in Engineering &amp; Information Technology</td>
<td>An online magazine whose articles cover career issues of technical professionals who are members of minority groups, women, or people with disabilities</td>
<td>diversitycareers.com</td>
</tr>
<tr>
<td>Women in Technology International (WITI)</td>
<td>A global trade association for tech-savvy, professional women</td>
<td>witi.com</td>
</tr>
</tbody>
</table>
Getting Started in an IT Career

1. Use the career resources at your school
   - Placement office

2. Develop relationships with your instructors
   - Many still work in field
   - Can provide advice and contacts

3. Start networking
   - Word of mouth
   - Professional organizations
Getting Started in an IT Career

4. Check corporate websites for jobs
   – List of job opportunities

5. Visit online employment sites
   – Can store résumé
   – Can see necessary skill sets
   – Can make yourself more marketable
## Getting Started in an IT Career

### Resources for IT Employment

<table>
<thead>
<tr>
<th>SITE NAME</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>CareerBuilder</td>
<td>careerbuilder.com</td>
</tr>
<tr>
<td>ComputerJobs.com</td>
<td>computerjobs.com</td>
</tr>
<tr>
<td>ComputerWork.com</td>
<td>computerwork.com</td>
</tr>
<tr>
<td>Dice</td>
<td>dice.com</td>
</tr>
<tr>
<td>Gamasutra</td>
<td>gamasutra.com</td>
</tr>
<tr>
<td>JustTechJobs</td>
<td>justtechjobs.com</td>
</tr>
<tr>
<td>LinkedIn</td>
<td>linkedin.com</td>
</tr>
<tr>
<td>Monster</td>
<td>monster.com</td>
</tr>
<tr>
<td>TechCareers</td>
<td>techcareers.com</td>
</tr>
</tbody>
</table>
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