KSA Category Descriptions

The Boise State University Computer Science department working with seventeen industry partners have identified several important KSAs (Knowledge, Skills, Abilities) leading to a successful career in computer science. The top KSAs were then broken into the following six categories listed below:

Business Skills: *An understanding of how a company makes money and executes it strategy*

- Translate Requirements: Business->Technical->Solution
- Discuss tradeoffs from business & technical perspective
- Understand the business process – become a "partner"
- Forming partnerships within your business and other
- Protection of intellectual property
- Foundational knowledge of PLM

Collaboration and Team Skills: *Working with other people and groups in order to achieve a goal*

- Version control tools and processes
- Software Development Methodologies (Agile)
- Practice in various Communication forms: 1:1, groups, presentations, verbal meetup, reviews …
- Mentoring/Nurturing and constructive feedback
- Ethical and moral foundation

Entrepreneurship Skills: *Organizes, manages, and assumes risks of a business or enterprise*

- Building a business case
- Cross functional project experience
- Project planning knowledge and skills
- Selling your idea/project

Professional Skills: *A person engaged or qualified in the computing profession*

- Managing your career – "Lifelong learning"
- Exposure to domain dives/curiosity to learn new domains
- Team management and roles
- Recognition, celebration and sense of achievement
- Knowledge of various careers using Computer Science
- Systems knowledge and experience

Research & Development Skills: *Seeks innovation, introduction, and improvement of products and processes*

- Clarifying requirements with business and clients
- Data Science
- User/customer focus vs experiments vs projects
- Understanding needs/constraints of various platforms
- Product lifecycle management

Technical Skills: *Practical knowledge associated with the computing field*

- Code quality evaluation and unit testing
- Working knowledge of Big Data, Hadoop, NoSQL, cloud data management …
- Code maintenance and maintainability
- Survey of current technologies and best practices
- Security
- IP/Networking practical knowledge
- Software Design
- Mobile Development
- Performance and Scalability Optimization