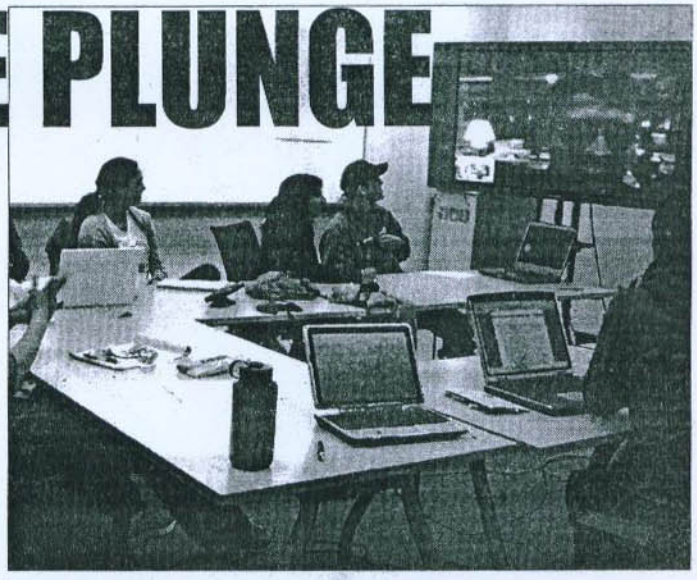
TAKE THE PLUNGE



With Indian product engineering companies making brisk business alongside coveted multinational brands, the future looks bright for software product engineers, says **Promila Roychoudhury**

CAREER

SULAGNA Chowdhury, a fourth year student of computer science engineering in a reputed private engineering college in Kolkata, had always wanted to be a software product engineer, mind it, not a software developer, a profession we all know of. Her wish was fulfilled when a top multinational IT firm recruited her as a software product engineer, after she had completed her four-year course.

Now, what is software product engineering and what is the basic difference between software developers and software product engineers? Don't these software people all come in one package — people who know nothing but the nitty-gritty of coding?

To answer these questions first it is essential to explain what are software product engineering and software development.

We all know that software engineering is the function of a systematic software development process constituting a zillion line software code, whereas software product engineering prioritises service offered that typically goes beyond one or a few customers.

Romit Dasgupta, director of the Globsyn Group, says, "Software development is a service very different from software product engineering. In most cases, software development is a subset of software product engineering. Software products are developed for business verticals and market segments without an individual client in mind."

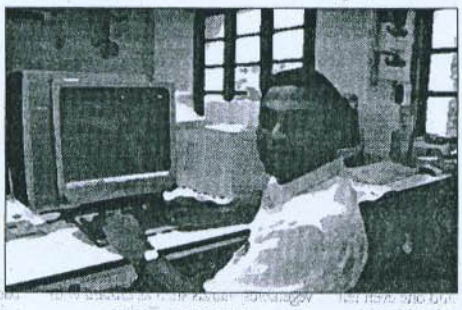
On the other hand, "Software product engineering focuses on developing generic software products that are used by the general public and enterprises. Software product engineering encompasses various activities across the product lifecycle right from conceptualisation to realisation to support", says Shankar Krishnamoorthy, chief technical officer of Aspire Systems (India) Pvt Ltd, a Chennai-based company.

If you are still in doubt, a simple example may just convince you. The patient management system a hospital builds is generally custom-built to meet its specific requirements. This is called software application or development. But patient management systems in different hospitals are generic in nature and caters to the various requirements of hospitals. In that case it would be called a software product.

"The purpose of software product engineering is to consistently and innovatively perform a well-defined engineering process that integrates all software engineering activities to effectively and efficiently develop correct, consistent software products.

Software engineering tasks include analysing the system requirements allocated to software, developing software requirements, developing software architecture, designing the software, implementing the software in the code, integrating software components and testing the software to verify whether it satisfies specific requirements," says Rajul Garg, co-founder and Sr vice-president of Corporate Development and People, GlobalLogic.

Ramanand Padiyar, global head, HR, Kale Consultants Ltd, says that aspirants need to have "an analytical bent of mind and should be able to grasp the essentials because when they interact with individuals, users or customers they need to understand specific areas or what exactly each person is seeking to convey. This attribute is extremely critical. He needs to have proper orientation in terms of providing solutions and should be able to solve problems effectively. He should also have a long-term perspective, which means going beyond immediate needs."



Says Krishnamoorthy, "On the surface level, both applications and products can use the same technologies, such as J2EE and .NET, but the way they are engineered is radically different."

Software product engineering provides more business value to existing customers by addressing the challenges of increased customer demands for innovative products.

"When you build a product, it has to work with several databases. For example, if you build a product for inventory optimisation, it has to work with Oracle ERP, SAP, Microsoft Dynamics, Great Plains etc. In the same way, if your customer wants to use different databases, it should be able to use any of the databases of the customer's choice. These are some of the standard engineering requirements that a product developer faces that does not figure in application development," he says.

A product development engineer must have a very strong hold over technology fundamentals like Net, J2EE, J2ME, BREW, WinCE, SIP, WLI, Oracle, XML, C/C++/VC++, Java, Symbian, Ruby on Rails and would also need to continuously upgrade his technical know-how.

"Product engineers are constantly challenged to build a product and are required to generalise the product usage. They should be up-to-date as far as technical know-how goes with an eye on making the product better. Software product engineers need to be highly conscious of the quality of the product and should be aware of the diverse requirements of this highly competitive field. Professionals need to be innovative if what they aim at are real achievement and job satisfaction," adds Krishnamoorthy.

Ready to take the plunge? Here's Dasgupta's take on what it takes to make it big in the field: "A thorough knowledge of the product, attention to details, work discipline, an analytical mind, innovativeness, sensitivity to timelines and most of all the ability to anticipate failures."

Nasscom estimates that product engineering space business will grow to about $12 billion by 2010.

"The domestic market is opening up for products. We are short of product engineers so, people with a product engineering background and the right aptitude are obviously in high demand," says Krishnamoorthy.

In India we focus more on services, especially application development. Product development has started gaining momentum of late with a renewed increase in domestic requirements. With the emergence of Indian product engineering companies such as Aspire Systems, Iflex, Synlog, Vedika Software, GlobalLogic and Globysn that have made a name for themselves in the software product engineering space alongside top multinational brands like Wipro, HCL, Infosys , Satyam, Yahoo, the future looks bright.

"You can aspire to become a subjects matter expert or can get into a 'consulting' kind of assignment or as an entrepreneur because once you have grasped the technical part and the product engineering part of the domain it is likely to prove beneficial. A few venture into developing software products.

According to Krishnamoorthy salaries in a product company are higher than in application development companies. A professional can expect his starting salary to range anywhere between Rs 200,000 to 400,000 per annum depending on the institute he has passed out from and the grade he has obtained.

"Very few institutes teach software product engineering. There are a few specialised postgraduation courses in product design and manufacturing. While these focus more on mechanical engineering, more or less the same concepts can be applied to software products as well", he says.

"The academia is intent on bridging the gap between what is taught in classrooms and real industry needs. GlobalLogic has close ties with a few institutions through its "Setu" programmes where we constantly keep them abreast of the latest technologies and industry requirements.

"Students of computer science and electronics and communication engineering generally crave a career in software product engineering. IIT, NIT, IT-BHU and BITS Pilani students can look forward to a bright career," says Garg.

Over and above students of top engineering schools, even graduates, obviously those with sound technical knowledge and an analytical mind can strive for a career in software product engineering. MCA or MSc pass outs with a background in pure science are also deemed highly eligible.