

So you're hot on hacking. How would you like to be on the other side? You can make websites harder to penetrate and earn big bucks, says **Prasun Chaudhuri**

## My name is Bond. Digital Bond

**T**ania Karmakar was a bit nervous when she walked into the campus recruitment interview at her tech school. By the time she left, however, she had the interviewers eating out of her hand. In the course of the long interview, Karmakar mentioned that their apparently secure corporate website was actually quite easy to hack into. "I told them plainly that their system was very vulnerable; just about any hacker can penetrate and wreak havoc in minutes. I even demonstrated how one could shred their security system. That seemed to give them a scare."

The company hired Karmakar immediately. She got her joining letter while most of her classmates — trained to be software developers — either did not snag a job or had to be satisfied with offer letters (many are yet to get joining letters).

"Students trained to be plain-vanilla developers have been facing problems in this bleak recruitment season," admits the placement officer (who doesn't wish to be named) at Karmakar's college in south Calcutta. "Unless you have some extra qualification — like Tanaya — you can't grab the attention of recruiters."

Karmakar's qualification is not just an "extra something". She's an aspiring

web penetration tester (or, pentester) — an expert who evaluates the security of a computer system or network by simulating an attack from malicious intruders. "Most security experts or auditors can find holes in the system, but pentesters are a bit ahead — they know exactly the way it can be hacked. It's an extremely challenging job," says Abir Atarthy, ethical hacker and co-founder of the Indian School of Ethical Hacking (ISOEH) at Kharagpur. Karmakar trained in pentesting at Atarthy's institute.

Many of the advantages that make online web applications — from net-banking to online shopping — so convenient also make them incredibly insecure. Hackers are able to use web applications to penetrate the enterprise's network and access private customer databases. "The resulting identity and data theft has become a major concern for both corporations and consumers," says Atarthy.

Terry Cutler, a co-founder of Digital Locksmith — a Canada-based company that provides security services to governments and top global companies worldwide — told **CareerGraph** why web penetration is hot. "Everything is now being built with a web interface. But, most web developers are not coding [the softwares] with security in mind. They are more focused on convenience and ease of use. Moreover, company administrators (mostly overworked and

### TECHNICAL SKILLS REQUIRED

- Thorough knowledge of JSP/Servlet/ ASP.net/PHP
- B.Tech(CS/IT)/MCA (optional)
- Strong in any scripting language (such as python)
- Idea of web technologies like Lamp



## WHERE YOU LEARN

### ABROAD:

➔ **Sans.org:** World's no 1 IT security training organisation

➔ **Hacklabs.com:** A company specialising in penetration testing

➔ **securityinnovation.com:** A leading provider of secure software development and training products and services

➔ **securitytube.net:** online video classes

### INDIA:

➔ **Indian School Of Ethical Hacking,** Calcutta (www.isoeh.com)

➔ **Netsoft Technologies,** Kharagpur (www.nstsite.com)

➔ **Intellectsecure.com,** Bangalore (www.intellectsecure.com/appsec.php)

➔ **Institute of Information Security,** Mumbai (www.iisecurity.in/courses/cwasp.html)

➔ **AppLabs,** Hyderabad (www.applabs.com/html/web-application-penetration-testing.html)

➔ **Computer Emergency Response Team,** (set up by Ministry of IT, Govt of India) (www.cert-in.org.in)

## WHAT YOU EARN

**Penetration testers can be designated as security analysts, security auditors, web analysts**

ENTRY LEVEL: Rs **3-3.5** lakh

MIDDLE LEVEL: Rs **6-10** lakh

SENIOR LEVEL: Rs **12** lakh and above

underpaid people) pay the least heed to the extra task of IT security. As a result, they bring webservers online with plenty of holes — vulnerable to misconfiguration attacks," Cutler says.

**S**uch malicious attacks have become commonplace even in India. According to statistics from the Indian Computer Emergency Response Team (Cert), set up by the Union information technology ministry, 7,450 Indian sites have been defaced between May and July this year. "Hackers have even attacked the sites of Microsoft India and the Defence Research Development Organisation. Recently Algerian hackers laid siege to five government sites," says Atarthy.

That the recent attacks have led to Indian enterprises pressing the panic button is evident by the number of postings for 'penetration testing' on top Indian jobsites. In September, there are over 100 openings. Says Sandip Sengupta, CEO, iSolution software, Calcutta, and an IT security expert, "Companies advertising for pentesters range from top technology multinationals to micro start-ups. As most companies have moved their critical business process to the web, they need to hire full-time pentesters to keep the massive data safe."

In the near future the demand for pentesters will far exceed that of developers or network engineers. "The industry needs around 4 lakh experts every year and there is an acute shortage of skilled pentesters," Sengupta says.

With so many corporate sites, social networks, email services and other web apps needing to be secured, this is a field that will just keep expanding, says Sudhangshu Chauhan, security researcher at Infosec Institute. "The field is not only financially rewarding but extremely interesting," he says. "After all, who doesn't enjoy finding flaws in other's (developers') work and getting paid for it!"

"Most testers get paid in the range of \$100 to \$150 an hour," says Terry Cutler. "A specialist consultant gets \$250 an hour or more."

**A**ccording to Atarthy, in India pentesters get paid on a per day or project basis. "A three-day project can fetch over Rs 1 lakh. This is the reason most companies are looking for full-time experts," he says. iSolution's Sengupta says that the average salary of a pentester is at least 20 per cent higher than that of a software developer. "Once you become a seasoned tester, and if you are considered an expert in the domain, you can earn millions as a security consultant and contribute to high-paying crowdsourcing platforms like HackAServer for testing applications for different companies," says Chauhan. And there always is the opportunity to found a startup and rise a notch.

But there is a downside too. "There's always the risk of being branded a cybercriminal if you point out the holes in a system voluntarily," says Atarthy. However, testing a site with permission from the administrator is not illegal. Says Cutler, "The biggest challenge is that some managers don't feel the urgency of bucking up IT security unless their sites are under attack. They try to sweep the issue under the rug feeling 'it will never happen to us'."

Notwithstanding these challenges, the field is growing by leaps and bounds, thanks to more and more attacks by infiltrators both from inside and outside big firms. Which is why youngsters like Karmakar have plenty of takers in this sunrise sector.

## Facebook generation

This generation of US college students is optimistic about their own futures but pessimistic about that of their country, Arthur Levine tells **TAMAR LEWIN**

**F**or more than four decades, Arthur Levine has been exploring the psyche of college students, a quest that has led to three books on different generations' behaviours and beliefs. The latest, *Generation on a Tightrope: A Portrait of Today's College Student*, written with Diane R. Dean, covers 2006 to 2011, distilling information from surveys and interviews with both undergraduates and student-affairs officials at 31 campuses nationwide.

Levine, the president of the Woodrow Wilson National Fellowship Foundation and former president of Teachers College at Columbia University, said his new book grew out of a mistake: his (incorrect) assumption that the terrorist attacks of September 11, 2001, were a watershed that had reshaped their lives.

■ **If 9/11 wasn't the biggest thing for this generation of college students, what was?**

To my shock, when we asked about the key event in their lives, they said it was the advent of digital culture. No. 2 was the economy, and 9/11 was third.

This shouldn't have been a surprise, since this is the first generation of digital natives in college, students who are accustomed to using Google and Yahoo and cellphones and Skype. When we asked how they adapted to the tidal wave of new technology, one student said, "It's only technology if it happened after you were born." It was only later that we realised how wise a statement that was.

■ **Over all, how is this generation of college students different from earlier ones?**

They're much more pragmatic. They say their primary reason for going to college is to get training and skills that will lead to a job, and let them make money. They're willing to have a major they're not really interested in if they think there will be job growth in that field. There's been a real shift in race relations. In the last two rounds, it was like black and white students had grown up in completely different worlds. When we would ask about different figures, blacks liked the ones whites didn't like. But now they tend to like and dislike the same people. This whole generation named the election of President Obama the fourth most important event in their lives. Also, this generation is very optimistic about their personal futures but almost equally pessimistic about the future of the country.

■ **Why do you think they are so optimistic?**

This is a generation that was not allowed to skin their knees. They got awards and applause for everything they did. So, it makes sense that they think very highly of their abilities, and expect to go on getting applause. The grade inflation on college campuses plays into that. Two out of five students have a grade-point average of A or better, and 60 per cent of them nonetheless say their grades understate the true quality of their work. Only five per cent have a G.P.A. of C or less.





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