Cyberblitz

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FROM HOD'S DESK

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Recession and the Solutions

Everybody knows about the recession in these days. Whether you are affected by the recession or not, it is projected as a reason to abstain from the normal business. Certainly, we are also affected to some extend in terms of placement. How do we overcome this? Can we overcome? We cannot increase the recruitment figures. That way, recession is not in our hands. But we can do another thing; equip ourselves better. What advantage is there if the company employs me, than the other person? If I have an edge over my peers by demonstrating one or more talents and soft skills it would be an added advantage on my side so as to be hired by a company. So we should try to get as much additional skill as we can acquire to overcome such difficulties. Let's concentrate on this.

Cyberblitz Ignition

On 14th July 2009 , the activities of Cyberblitz was officially inaugurated. Dr.Ranjith Abraham, COO of Armia Systems, Infopark gave a talk on 'Future of Computing'

Two days Workshop on Software Estimation

Department of Computer Science & Department of Information Technology are planning to conduct a two day workshop on Software Estimation on 28th and 29th August, 2009 at Rajagiri School of Engineering & Technology by Prof.K.S.Mathew , a Postgraduate (M.Tech) in Electronics and Communication Engineering from IIT , PMI certified Project Management Professional (PMP) and a Certified Information System Auditor (CISA) having 25 years of experience in software project management , software size/effort estimation & sales activities ,team leadership and hands on all the phases of software development life cycle..

The workshop will enable the participants to:

- Understand the basic concepts of various software estimation techniques.
- Estimate software size by using the IFPUG Function Point Analysis (FPA) technique.
- Count Function Points for enhancement or maintenance software projects.
- Estimate software size by using the MARK II Function point analysis (Mk II FPA) technique.
- Estimate Software size by using the Use Case Point (UCP) and Object Points technique.
- Understand the basic concepts, processes and models related to effort and schedule estimation for a software projects.
- Understand the basic concepts of COCOMO model and how to use the COCOMO model for effort and schedule estimation.
- Estimate effort using WBS & Delphi Wideband techniques.

Target audiences:

Software Developers, Business Analyst, Team leaders, Business Development executives, Project Managers, Senior Executives, Line Managers, SQA/SEPG members and Faculty members from academic institutions.

Open University course in Information Systems Security

For those who want to learn more about Information Systems Security

IGNOU is ready to help. IGNOU has joined hands with RAJAGIRI EDUCATIONAL CHARITABLE TRUST to offer M.Tech programmes which targets people working in industry and lecturers who want to pursue a PG degree.

The course was officially launched at a function held at RASET which was inaugurated by the Vice - Chancellor of IGNOU V.N. Rajashekaran Pillai.

CREATING A SERVICE IN WINDOWS

Mr. Unnikrishnan C , Lecturer

We have seen many students doing projects involving client server architecture. There will be one server and one or more clients which will be connecting to the server. What we do to start the server is login to the system, start the server executable program. Once the server gets started then client can be initiated from remote machines.But this is a tedious task. Can we think of a situation where we will have the server running when the machine is just switched on; no need of logging in and running the executable? This will make system easier also server can be used by a user who is not the owner of server application.

This is possible. Before explaining I would like to explain few terms. TSR (Terminate and Stay Resident) are programs which run in the background . There many process which are run in the background which are initiated before a user logs in and exist even after user login and logout. This will terminate when system is switched off. In UNIX we call this type of process as daemons.

Our aim is to make the server program as a TSR. Consider a simple multithreaded echo server- echo client java program. We would like to run the echo server as a TSR, so that remote clients can connect to server when the system is switched on. To do this first we have to download windows resource kit which contains binaries instsrv.exe and srvany.exe.

Create a myscript.bat file with the following contents

```
set path=%path%;"C:\Program Files\Java\jdk1.5.0_05\bin"
c:
cd c:\workingmc
javac mechoserver.java
javaw  -Xrs mechoserver
```

Then type the command

```
C:\Program Files\Resource Kit\instsrv myscript "C:\Program Files\Resource Kit\srvany.exe".
```

This will create a service myscript.You can check it by using services.msc command.It is important to note that you should use javaw with –Xrs option.

Create new registry entries for the new service.

- run command regedit and go to the HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\myscript entry
- add new key (Edit->Add Key) called Parameters
- add new entry for Parameters key (Edit->Add Value) to set the Application name

Name should be Application ,Type should be REG_SZ ,Value should be path to myscript.bat, i.e. C:\myscript\myscript.bat

- add new entry for Parameters key (Edit->Add Value) to set the working directory

o Name should be AppDir ,Type should be REG_SZ , Value should be path to myscript directory, i.e. C:\myscript Test starting and stopping the myscript service in Computer(use services.msc command).Once the service is started the echoserver program will run as a TSR and will be running once the system is switched on.It will be there before login and after userlogin/logouts.It will terminate only when system is shutdown.

Capturing Images in Non-traditional Way

Ms. Mintu Philip, Lecturer

New research in imaging may lead to advancements for the Air Force in data encryption and wide-area photography with high resolution.

Lead researcher Dr. Jason W. Fleischer of Princeton University and his team used a special optical device called a nonlinear crystal, rather than an ordinary lens, to capture an image. Every image is made up of a collection of light waves, and a lens bends (refracts) the waves towards a detector. In contrast, in the nonlinear material, these waves "talk" to each other and interact, generating new waves and distorting themselves in the process.

The mixing is a form of physical (vs. numerical) encryption, but it would be useless if the process could not be reversed. The algorithm provides a way of undoing the image and thus recovering the original signal. If the signal itself is encrypted from the beginning, then the method would provide another layer of protection.

The reversing algorithm also allows the researchers to capture information that is lost in other imaging systems. Experimentally, the method relies on imaging both the intensity and travel direction of the waves. This is done by taking a standard photograph of the object alone and then one with the object and an added plane waves. The result, called a hologram, is then fed into the numerical code.

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The researchers obtained photos of various objects by using the image-capturing equipment, and in every instance, their images consistently have a wide view with a high resolution. They used an Air Force resolution chart, which is designed to check the quality of imaging systems.

Imaging applications include optical systems that maintain their field of view as they zoom, sharper microscopes, improved lithography, and dynamical imaging of 3D objects.Fleischer and his team are now searching for new materials to increase the level of wave mixing for stronger, faster interactions at lower light levels.

Light travels nearly instantaneously from one end of the crystal to the other, but it takes about a second for it to respond nonlinearly. It takes less than 10 seconds to capture multiple pictures of the output and another minute or so of computer time to put them together and run the code backwards to re-construct the images.

In the future, the multiple pictures may be taken simultaneously and reconstructed faster than the current processing time it takes on a normal computer.

Land Safely Back on the Moon

A hazard-detection system promises safe landings for next-generation lunar explorers.

Mr. Shine V J , Lecturer

Engineers at the Charles Stark Draper Laboratory(formerly the MIT Instrumentation Laboratory) in Cambridge, are developing a guidance, navigation, and control system for lunar landings that includes an onboard hazard-detection system able to spot craters, slopes, and rocks that could be dangerous to landing craft. In the Apollo missions of 40 years ago, astronauts steered the lander to a safe spot by looking out the window; the lander itself "had no eyes," says Eldon Hall, a retired Draper engineer and one of the original electronics designers for Apollo's navigation computer.

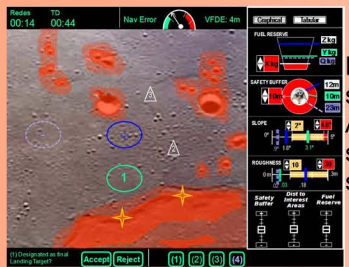
That meant there were some close calls with Apollo, says Tye Brady, the technical director for lunar landing at Draper, who demonstrated his team's automated-landing and hazard-avoidance technology. "They were really close," Brady says, "and one- to two-meter craters are deadly. You don't see them till the last minute." Apollo 11 astronaut Neil Armstrong had to steer past a field of rocks that didn't show up on any recon photos beforehand, and Apollo 14 landed at a precarious tilt with one footpad resting about a meter away from a crater.

The new navigation and guidance system is being developed for NASA's Altair lunar lander, which is scheduled to land on the moon by 2020 as part of the Constellation program. The project is headed by NASA's Johnson Space Center, with support from other NASA research facilities in addition to Draper Laboratory. The Jet Propulsion Laboratory recently completed a field test of the sensors and mapping algorithms, and it plans to begin full systems tests in May 2010.

Brady says that the best image resolution today, such as the cameras on the orbiter now circling and photographing the moon, cannot resolve smaller holes or boulders at projected landing sites, even in smooth, well-lit areas--which aren't the targets for NASA's future landings. Altair aims to land capably at any site on the moon's surface, and the lunar terrain will vary. For that "a real-time hazard detection system" to adjust as it goes.

Back to the moon: Altair is NASA's next-generation lunar lander, larger than the Apollo lander but with similar design features. It will carry four astronauts. Credit: NASA

Draper's system will use LIDAR (LIght Detection And Ranging) laser technology to scan an area for hazards like craters or rocks before the lander touches down on the moon's surface. Raw data from LIDAR is processed and assembled into a 3-D map of the moon's surface, using algorithms developed by the Jet Propulsion Laboratory. One advantage of using LIDAR is that "it's the only type of sensor that measures the 3-D shape of what's on the ground at high resolution and from high altitude". That allows the system to build a terrain and elevation map of potential landing sites onboard the spacecraft, but from high enough up that there is time to respond to obstacles or craters at the landing site.



Landing in a pinch: Draper Laboratory's simulated guidance, navigation, and control system prioritizes landing sites (areas 1, 2, 3, 4) in this representative display. Astronauts may designate a first-choice site or default to site number 1. Hazards such as boulders and craters are highlighted in red for real-time decisions about safe landing sites. Credit: Draper Laboratory

Once the map is built, the system designates safe sites based on factors like the tilt angle of the surface, the distance and fuel cost to get to a site, the position of the lander's footpads, and the crew's margin for safe distance from hazards. Based on that information, the navigation system presents astronauts with a prioritized list of three to four safe landing sites. The astronauts can then designate any of the sites as first choice, or if they are incapacitated, the system will navigate the lander automatically to the first site on its list.

The ability to land automatically will enable both crewed and robotic missions to land safely. In addition to NASA's Altair, the system could be integrated into vehicles landing on near-Earth asteroids, Mars, and other planets, or used with other lunar vehicles built by private groups.

Another advantage of using LIDAR, is that it works under any lighting conditions. To deal with light at the moon's equator--where a "day" is equivalent to 14 Earth days, and a "night" lasts 14 Earth nights--Apollo missions had to be timed exactly, with just one launch opportunity per month, so NASA could control the craft's exposure to light and heat. But because lighting conditions are more varied and extreme at the moon's poles, with patches of light and dark from the shadows of mountains and deep craters, it will be difficult for astronauts to see to navigate. LIDAR allows the craft to land at night, or in shadowed regions, because the light is provided by the LIDAR sensor, not the sun. With real-time hazard detection, the launch and landing limitations of Apollo won't apply to future missions.

The challenge for a landing system, is getting everything to happen in about 120 seconds, including hazard-detection scans to get the data, human interaction for site approval, and then hazard-avoidance maneuvers and touchdown. They developed a simulator to create realistic image maps of the moon's surface, in addition to using computer code from NASA for the guidance and navigation portion of the system.

The Draper team continues to develop high-fidelity models of LIDAR and terrain maps, while coordinating with NASA's crew office to determine the best way to display information for astronauts. They aim to have the technology ready by 2012.

Student's Corner

THE AGE OF PIRACY

The last time the world experienced a grand age of piracy was the centuries following the middle ages upto the 1900's coinciding with the age of navigation. In a highly sea faring world pirates flourished and battled on the waters, spurned on by dreams of riches, bounty, discovery or ideals of adventure, challenging themselves against the waves of the ocean. Aside from this highly idealized notion of a pirate the majority of the lot were thieves, plunderers and villains that took what was not rightfully theirs.

The 21st century finds itself in a brand new age of piracy – partly by the highly successful Pirates of the Caribbean franchise and even by certain Somalian sailors with a penchant for oil tankers and cruise ships. However this new millennium of piracy exists in a different ocean and sees battles of a different kind.

Digital piracy encompassing movie, music, games and commercial software costs their respective industries billions of dollars a year. Movies appear on the internet almost simultaneously as their theatrical releases and sometimes even earlier. The latest computer games and software are similarly available for download within minutes of their commercial sale.

Movie Piracy

When the highly anticipated addition to the X Men franchise- X-Men Origins: Wolverine hit theatres worldwide in May 2009 already over a million people had watched it. An unfinished version of the movie bereft of audio and some special effects had been leaked on to the internet and had been downloaded by millions via bit torrent. While such early pirated releases are rare yet not uncommon it was a big blow to the movie industry, which like everything else is in the grips of the recession. The movie which was a big budget production fared poorly at the box office, which experts blamed on the pirates.

Movie piracy has come a long way from when all that the industry had to worry about were poor quality versions recorded using a camcorder. Typically, the person filming the movie will smuggle a compact digital camcorder into the theater by hiding it in their clothing or in a bag. He then records the movie using the camcorder as unobtrusively as possible. They may try to pick a seat as far back in the theater as possible to avoid the attention of other patrons (and to ensure proper framing of the screen) or may choose sparsely attended show times. He may also know employees of the cinema who deliberately overlook infringement activity. Sometimes cam versions are made by projectionists themselves. Such versions referred to as Cam Rips are mostly for the impatient type of downloader desperate to get their hands on a movie as soon as it gets released.

Cam Rips are the worst quality of movies owing to the fact that program audio is not recorded by the built-in microphone of the camera, but rather by a direct electronic link into the stereo monitor output of the audio rack. Further more audio cannot be screened hence the voices from the audience also gets recorded. However with improving camera quality and skillful work on the part of the filmier cam-rips are good enough to be sold on the streets.

To counter this many major motion pictures started to arrive at the theaters with unique patterns of tiny dots embedded throughout the film, known as Coded Anti-Piracy technology. If the filmier is unable to catch and blur all of these sequences, the studio will be able to determine at which theater the cam was recorded. The theatre staff is also trained to spot suspicious movie goers, and may even use night vision goggles to apprehend the ones that get through.Also a 3-D movie when recorded suffers from a great deal of distortion, pointing to a possible future for movies.

These measures are however unreasonable to implement given the enormous number of screens showing a movie and the inherent lack of expertise. Besides what's the point of stopping camcorders when mobile phone cameras can be a decent replacement.

Others avenues which can lead to a movie being leaked are screeners and workprints.A screener is an advance screening of a film sent to critics, awards voters, video stores (for their manager and employees), and other film industry professionals, including producers and distributors. Often, each individual screener is sent out with distinct markings (such as a digital watermark), which allow copies of a screener to be tracked to their source.

A screener normally has a message overlaid on its picture, with wording similar to: "The film you are watching is a promotional copy, if you purchased this film at a retail store please contact 1-800-NO-COPIES to report it.

A workprint is a copy made from an unfinished version of a film produced by the studio. Typically a workprint has missing effects and overlays, and often differ from its theatrical release. Some workprints have a time index marker running in a corner or on the top edge; some may also include a watermark. A workprint might be an uncut version, and missing some material that would appear in the final movie.

However the biggest threat to Hollywood is high quality DVD-RIP uploaded online after cracking (Modifying software to remove copy protection -- one of the technologies companies use to prevent unauthorized reproduction of media) a final version retail dvd. The American movie industry is increasingly reliant on dvd sales to cover the movie costs. The presence of DVD and even HD rips free of cost greatly eats into sales. The studios' attempts at safeguarding their products against piracy, such as by encoding DVDs with digital watermarks that allow authorities to trace individual copies prove futile since pirates have figured out how to strip watermarks from dvds.

The boom in internet download speeds and the mushrooming of file sharing and peer to peer networks have intensified the problem. In the mid-1990s, the average Internet user was still on dial-up, with average speed ranging between 28.8 and 33.6 kbit/s. If one wished to download a piece of software, which could run about 200 MB, the download time could be longer than one day, depending on network traffic, the Internet Service Provider, and the server. Around 1997, broadband began to gain popularity due to its greatly increased network speeds. As "large-sized file transfer" problems became less severe, warez(slang for any movies, music, applications or any other materials being traded in violation of copyright law. became more widespread and began to affect large software files like animations and movies.In the past, files were distributed by point-to-point technology: with a central uploader distributing files to downloaders. With these systems, a large number of downloaders for a popular file uses an increasingly larger amount of bandwidth. If there are too many download, the server can become unavailable. The opposite is true for peer-to-peer networking; the more downloader the faster the file distribution is. With swarming technology as implemented in file sharing systems like eDonkey2000 or BitTorrent, downloaders help the uploader by picking up some of its uploading responsibilities. There are many sites with links to Rapidshare and other sites where one can upload files that contribute to the growing amount of warez.

With the invention of video compression formats, it is possible to fit an entire movie on CD, with near TV quality. Or, with lower quality, it is possible to fit two or more movies on one CD. Also, the invention of DVDs has only made it easier to transfer video to the computer, and the image quality is much higher. In years past, downloading a movie that is 1300 MB in size over a 28.8 modem would have taken many days or even weeks. But with the introduction of high speed internet technology into the home, such as DSL and Cable Modems, and with the possibility to compress a movie down to 300 MB or less, it only takes minutes or hours to download a full movie.

As one sided as the argument against piracy seems the online community is polarized on this issue. A number of pirates crack movie and game dvds, upload them free for all, getting no profit in return. These pirates seek mostly respect and reputation within their online gangs. Also there is the ideal of the “Free Culture Movement” which believe that copyright laws are oppressive and strangle human creativity. One can also vouch for pirates by considering the fact that many movies are never released or cost exorbitantly high. It is said that windows wouldn’t have the monopoly of the OS market where it not for the pirated versions.

However these arguments are quite trivial and are easily overshadowed by the simple basis that piracy is STEALING. Piracy is theft of intellectual property and is no more justifiable than shoplifting. A common refrain with regards to impact of piracy on movies is that Actor X or Actress Y will still sign astronomical contracts and hence are unaffected. But if one were to stay till the end of any movie you would see hundreds of people in the closing credits who worked hard and will probably bear the brunt of falling profits.

Neither can one feign ignorance about the existence of anti-piracy laws, people still acquire illegal digital content despite knowing that it is wrong- because they believe that there is no chance of being caught. Anti piracy groups have started publishing fake torrents that attempt to draw unsuspecting downloaders into revealing their IPs, from which further action can be taken.

In conclusion whether you consider piracy a scourge or a freedom struggle there is no denying that it is here to stay. The grand age of pirates is upon us and it’s our prerogative to choose the right side.

Amit Sunil S5 CS A

MICROSOFT SURFACE

Anupa Viswanath S7 CS

Surface computing is the term for the use of a specialized computer GUI in which traditional GUI elements is replaced by intuitive, everyday objects. Instead of a keyboard and mouse, the user interacts directly with a touch-sensitive screen. It has been said that this more closely replicates the familiar hands-on experience of everyday object manipulation. Recent minor innovations in the surface computing field are attributed to Apple, Inc and to Microsoft Corporation.

Microsoft introduced Microsoft surface with surface computing technology.

Surface turns an ordinary tabletop into a vibrant, dynamic surface that provides effortless interaction with all forms of digital content through natural gestures, touch and physical objects. The intuitive user interface works without a traditional mouse or keyboard, allowing people to interact with content and information on their own or collaboratively with their friends and families, just like in the real world. Surface is a 30-inch display in a table-like form factor that small groups can use at the same time. Surface lets us manipulate a tremendous amount of information with our hands so that the content works with you rather than for you.

For example, with Surface's mapping application, you can manipulate a map and move it, shrink it and access personalized data for local sites, attractions and venues. To do this today, you'd need a paper map, books, concierge and even a bookstore to find and gather all the information. Or, with Surface's photo application, you have the ability to sort through pictures, decide which ones you want to share, zoom in for a closer look and more. In these ways, Surface is unlocking content; making it rich, more fun and easier to use

Surface computing, which Microsoft has been working on for a number of years, features four key attributes:

Direct interaction. Users can actually "grab" digital information with their hands, interacting with content by touch and gesture, without the use of a mouse or keyboard.

Multi-touch. Surface computing recognizes many points of contact simultaneously, not just from one finger like a typical touch-screen, but up to dozens of items at once.

Multi-user. The horizontal form factor makes it easy for several people to gather around surface computers together, providing a collaborative, face-to-face computing experience.

Object recognition. Users can place physical objects on the surface to trigger different types of digital responses, including the transfer of digital content.

On Desk: Sangeetha Jamal, Ajith S, Neethu Edwin A **Illustrations**: Deepu M