

“Assessment of SAP Business One Program in San Beda College Alabang” in a Technical Perspective.

Engr. Edgardo Torres, MBA

Abstract

Background SAP (Systems Application in Data Processing) is the leader in the market of enterprise applications in terms of software and software-related service. SAP Business One is the primary product offered for small and medium enterprise. In the academe, it is offered as a full fledged course. In San Beda College Alabang, it is offered as an elective subject in both the Information Technology and Business Programs. The complexity of the platform resources (hardware, operating system, network infrastructure) paved the way for the initial technical assessment of the existing resources in San Beda College Alabang.

Results SAP Business One current configuration in school laboratory set-up is different from the optimum set-up in an actual industry/business set-up. The usual 2 tiered architecture in the industry set-up is being replaced by a single architecture in which the local workstation serves as the physical location of both the SAP client workstation and the local host serves as the location of the company database.

Conclusions An analysis on the present SAP Business One in San Beda College Alabang shows the need for an additional incorporation of simple database maintenance and back-up training prior to the actual functional training this was due to absence of enough database security in a single architecture system. The present set-up does not support multi-user environment also.

Review of Related Literature

Introduction to ERP and SAP

Enterprise resource planning (ERP) is a cross-functional enterprise system driven by an integrated suite of software modules that supports the basic internal business processes of a company. ERP gives a company an integrated real-time view of its core business processes such as production, order processing, and inventory management, tied together by ERP applications software and a common database maintained by a database management system. ERP systems track business resources (such as cash, raw materials, and production capacity) and the status of commitments made by the business (such as customer orders, purchase orders, and employee payroll), no matter which department (manufacturing, purchasing, sales, accounting, and so on) has entered the data into the system. ERP facilitates information flow between all business functions inside the organization, and manages connections to outside stakeholders

SAP stands for **Systeme, Anwendungen, Produkte in der Datenverarbeitung**. In English **Systems, Applications, Products in Data Processing**. It is the leader in the market of enterprise applications in terms of software and software-related service. It was developed by 5 ex IBM (International Business Machine) Engineers, through the years they have developed different SAP products that is used by different type of businesses and different platforms.

SAP B1 (SAP Business One) is an integrated enterprise resource planning (ERP) solution for small and medium-sized businesses, as well as divisions and subsidiaries of larger companies. Produced by SAP AG, the solution is intended to assist companies by providing support for

sales, customer relationships, inventory, operations, financials and human resources. SA application has over 30,000 customers.

The product is sold, implemented, and supported through a global network of local resellers. The rough cost of a B1 license is around 1000 to 2500 Euros - varying from country to country.

SAP Business One provides essential business functions out-of-the-box, including:

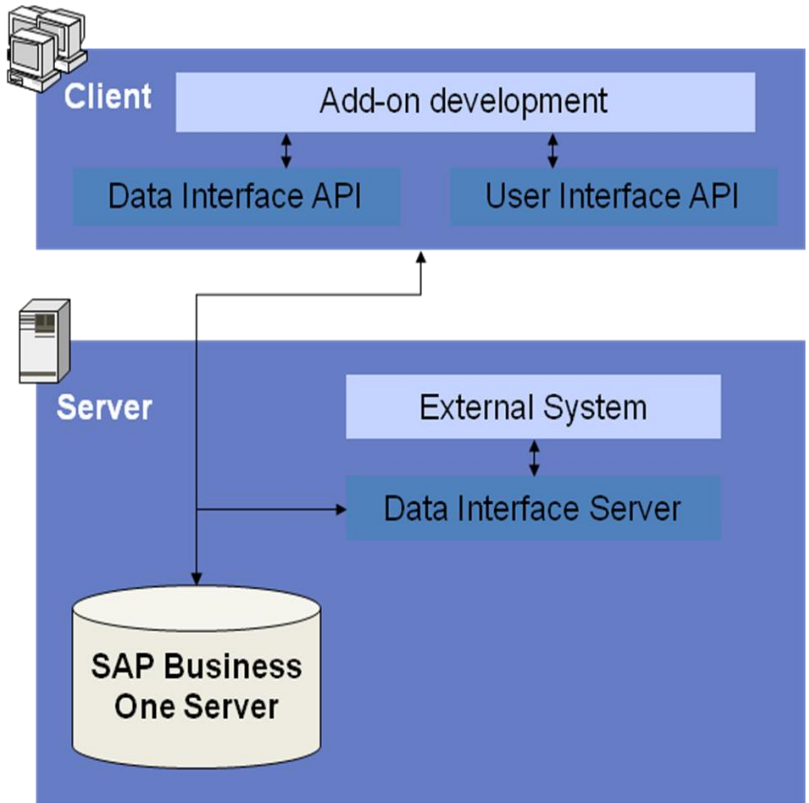
- **Financial management:** automate financial and accounting processes. Includes support for multiple currencies, budgeting, and bank reconciliation
- **Warehouse and production management:** manage inventory across multiple warehouses, track stock, and manage production orders based on material requirements planning
- **Customer relationship management:** offers sales and opportunity management, and after-sales support
- **Purchasing:** automate procurement – from purchase order through vendor invoice
- **Mobility:** for iOS, SAP releases an app for iPhone or iPad to interact with SAP Business One in the backend
- **Reporting and Business Intelligence:** provides access to data in order to create new reports and customize existing ones with integration with Crystal Reports
- **Analytics Powered by SAP HANA:** using in-memory computing technology / SAP HANA database for instant access to real-time insights

SAP Business One is delivered with 41 country localizations, and supports 26 languages.

Technical Infrastructure of SAP Business One

SAP B1 is running under a two tiered Client

Server Architecture



It is called a two tiered architecture because it is presented into two layers. The first layer is the client that consists of the workstations for different type of SAP users. Each workstation is being installed with a SAP Business One Client program. The second layer is SAP Business One Server being controlled by a backend

database platform. Just like any ordinary network system, this two layer of technology must be supported by 3 individual resources namely hardware, operating systems and database platforms.

Listed below are the resources supported by SAP B1

Hardware Platform

1. HP
2. **IBM**
3. Sun
4. AT&T
5. AS400
6. Bull
7. Sequent
8. SNI
9. Compaq Digital

Operating Systems

1. **MS Windows NT**
2. OS/400
3. Unix
4. Solaris
5. AIX
6. HP UX
7. Sinux

Database Platform

1. Oracle
2. **MS SQL**
3. Informix
4. Sybase
5. Adabas D
6. DB2 for AIX
7. DB2/400

San Beda College SAP-B1 Existing Infrastructure and Its Complexity

The SAP Business One Program is being offered in partnership with FIT Academy (FAST Track IT Academy). The latter is responsible for doing the training of faculty and giving supporting instructional and technical materials which include training for the installation of SAP B1 package. The school's IT (Information Technology) Department is responsible for maintaining the SAP B1 resources particularly the installation of SAP B1 client and license server. For the last 3 school years, the institution is using SAP B1 version 8.80. It is only this semester that FIT Academy is recommending SAP B1 version 8.82. The IT department headed by Mr. Jeffrey Aeron is responsible for the maintenance of the whole computer network of San Beda College Alabang and this includes the computer laboratories in both the College and Integrated Basic Education Departments. The College IT Academic program chaired by Engineer Aristotle Musni is responsible for the implementation of all the computer courses in the College Department. The researcher, a faculty member, is only one of the two faculty members handling SAP B1 training.

The researcher made two quick observations during the course of the SAP-B1 training implementation. The first observation is that the workstation used by each student also serves as the default location of the server. In other words, they are using the local host. In this situation, if the workstation bogged down, the SAP database made by the student will also bog down. This is very far from the concept of a two tiered architecture set-up of the SAP B1 in the corporate environment. In this setup, the workstation will be needed only to maintain the actual Client program but not the company database (of student) and SBO-Common database (database shared by the application) in order for it to work. The second

observation is that there is no dedicated laboratory whose purpose is for SAP B1 training program. As of the time this paper is being conceptualized, the one responsible for the maintenance of the college laboratory is Mr. Mark Mazaredo, a computer science graduate from Adamson University and formerly the one maintaining the San Beda College Library Information System. He is also responsible for the other software used by the other college IT instructors in handling other subjects which is heavily reliant on database platform. Currently, the SAP B1 training program is being offered in room 82H and room 82D . Take for example in room 82D, one of the subjects being offered there is Database programming which is using MS SQL Server 2008 while SAP B1 is using MS SQL Server 2005.

These two major observations really stuck on the mind of the researcher and led him decide to come out with a paper to assess the existing SAP B1 infrastructure. The paper is entitled “**Assessment of SAP Business One Program in San Beda College Alabang in a Technical Perspective**” because it only intends to cover the assessment of the existing I.T. infrastructure and not to recommend specific updates on the existing curriculum. However, this paper is not meant to make some abrupt recommendations on some possible changes in the existing I.T. infrastructure but to recommend ideas on how to fully utilize the existing I.T. infrastructure in San Beda College Alabang as far as the implementation of SAP B1 training program is concerned.

Research Methodology

The researcher conducts 2 sets of questionnaires. The first set of questionnaire is intended for BM (Business Management) students and IT (Information Technology) students taking up/have taken up both Basic and Advanced SAP B1 training. The questions for

BM and IT students are relatively the same. The table below shows the distribution of respondents for the students taking up/have taken up SAP B1 training program.

Courses Taking/Have Taken up SAP B1	F	%
Business Management	82	59.85
Information Technology	55	40.15
Total	137	100.00

The questionnaires were deployed using Google DOCS maintained by the researcher which is either shared to email accounts of those taking up SAP-B1 training. Another way of deployment is done through the researcher's timeline on the Facebook account (intended for graduates or for those who have taken up their SAP B1 training)

The questionnaire is a formal survey aimed to assess two major areas of concern namely:

1. Software Quality Assessment
2. Network and Data Security

The second questionnaire is intended for Mr. Mark Mazaredo (currently in charge of maintaining the SAP-Business One Workstation in the Computer Laboratory.

Lastly the researcher made an actual experiment attested by Mr. Mark Mazaredo to assess some quantitative data which cannot be accurately measured by the students.

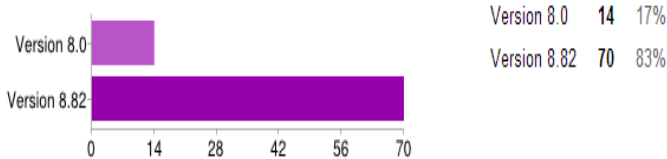
Interpretation of Findings

The summary of results was generated using the view analytics feature of Google Docs form

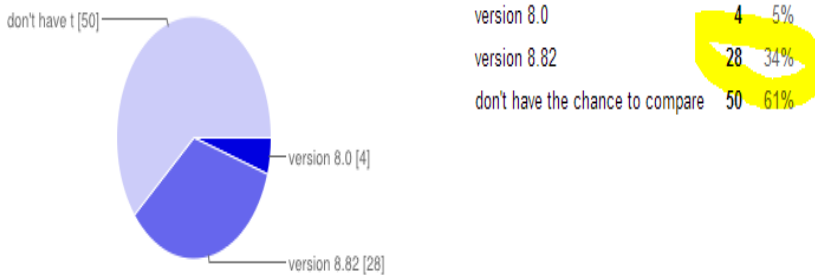
Students Survey Results

- A. Software Quality and Assessment**
 - For Business Management Student

What SAP version did you use or currently using in in your SAP Training?



In terms of start up speed which is faster version 8.0 or version 8.82?

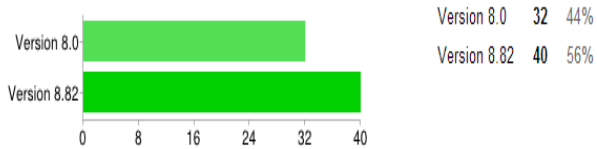


In terms of the physical database size which of the two version is bigger?

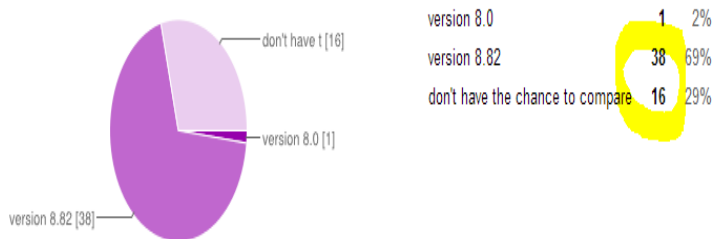


- For IT Students

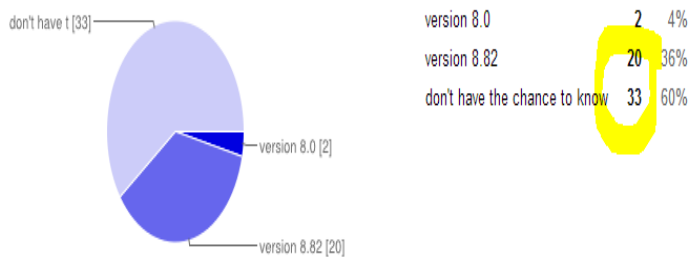
What SAP version did you use or currently using in in your SAP Training?



In terms of start up speed which is faster version 8.0 or version 8.82?



In terms of the physical database size which of the two version is bigger?



Survey shows the school has the opportunity to use 2 software versions. Version 8.82 is faster than Version 8.0 however the former consume much disk space than the latter. Assuming the two factors below:

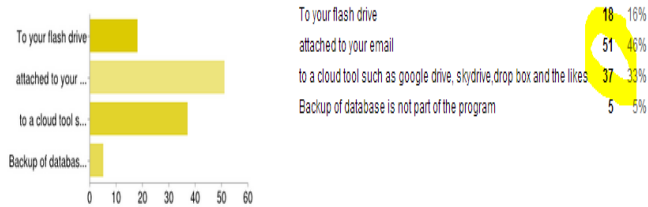
- Economy of disk space used (this will be interpreted in the next findings)
- Functionality of the software (this will be impossible to measure by current and old students because the new version is just implemented this 1st semester school year 2013-2014)

One can readily decide that the Version 8,82 is better than its predecessor (version 8.80)

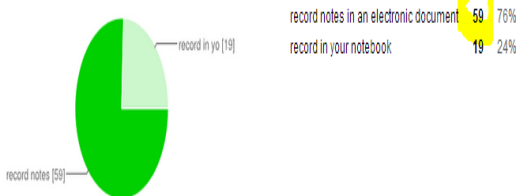
B. Network and Data Security Assessment

- For Business Management Student

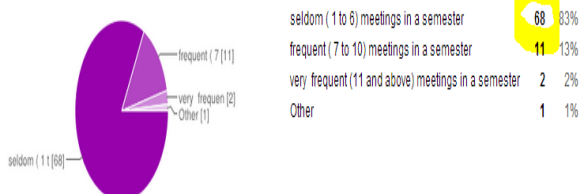
How did you backup your company database?



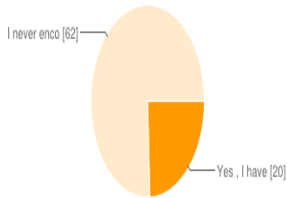
If there is a need to take some notes during the actual discussion and laboratory exercises , what would be your preferred methodology?



Have you experience down time of the internet during actual SAP training, How often?

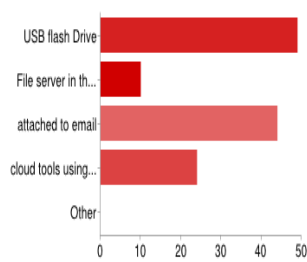


Is there a time that your company database was lost ?



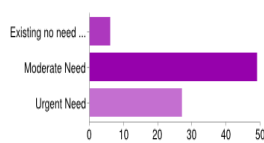
Yes , I have encountered 20 24%
 I never encountered 62 76%

Given the chance to have a backup copy of your physical company database , What method do you prefer



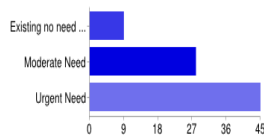
USB flash Drive 49 39%
 File server in the intranet setup attached to email 10 6%
 cloud tools using google drive, sky drive and the likes 44 36%
 Other 24 19%
 0 0%

ability to apply the corporate set-up of multi-user environment for a single company database [Please assess the following SAP technical features]



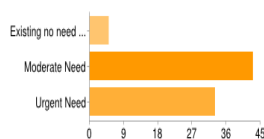
Existing no need for this 6 7%
 Moderate Need 49 60%
 Urgent Need 27 33%

A suitable anti virus to protect SAP client and database [Please assess the following SAP technical features]



Existing no need for this 9 11%
 Moderate Need 28 34%
 Urgent Need 45 55%

provision for a server backup or other means [Please assess the following SAP technical features]

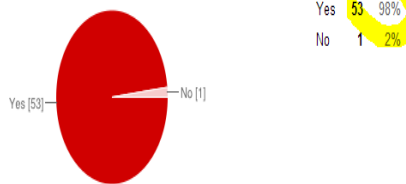


Existing no need for this 5 6%
 Moderate Need 43 53%
 Urgent Need 33 41%

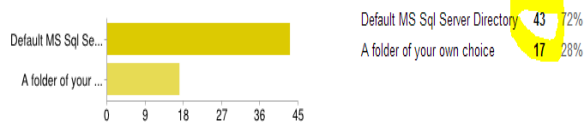
The findings above show the need for another file server for students' database to minimize or even eliminate the loss of company's database in case of a certain work station bog down. This is possibly the reason why 64% are either using email attachment or cloud tools to preserve their work. Additionally, the students are also in favor of setting up a database server to set up a multi user environment. They are also heavy users of electronic documents for their notes. These findings will conclude that 7 to 10 meetings of internet down time must be lowered or a file server for intranet use must be set-up

- For IT Students

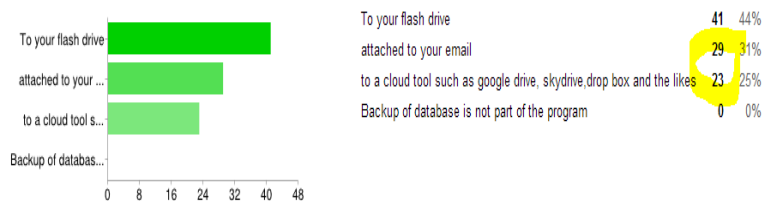
Did you practice attaching and detaching company database from the server?



If your answer is YES in the previous question , where do you put the physical database?

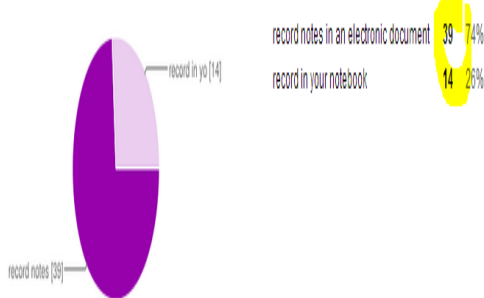


How did you backup your company database?

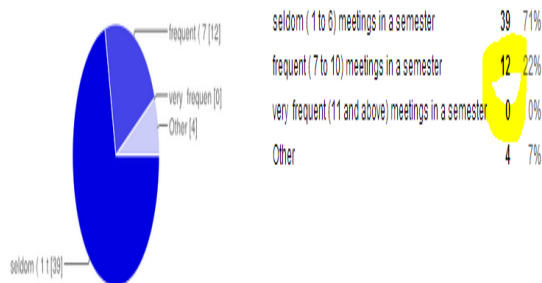


Findings above show that IT students have a full access on the database server because 98% of them were able to attach and detach from their database. It is a clear indication that if the other BM students (who do not have technical training) will not be able to detach and back up their database, the potential loss of data cannot be avoided unless a central database server with log-in authority will be constructed for each student or a technical training will also be provided for BM students.

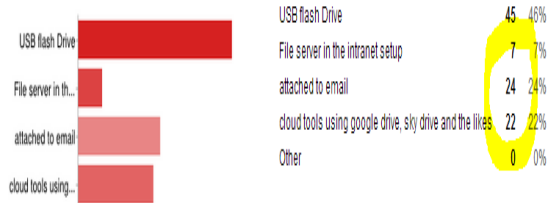
If there is a need to take some notes during the actual discussion and laboratory exercises, what would be your preferred methodology?



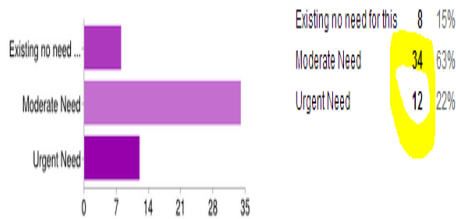
Have you experience down time of the internet during actual SAP training, How often?



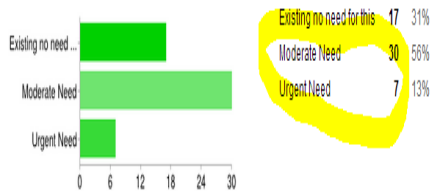
Given the chance to have a backup copy of your physical company database , What method do you prefer?



ability to apply the corporate set-up of multi-user environment for a single company database (Please assess the following SAP technical features)



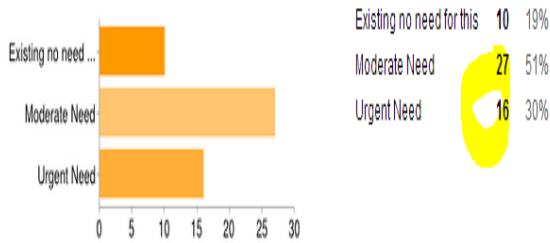
Basic Functionality for a single user , single database environment (Please assess the following SAP technical features)



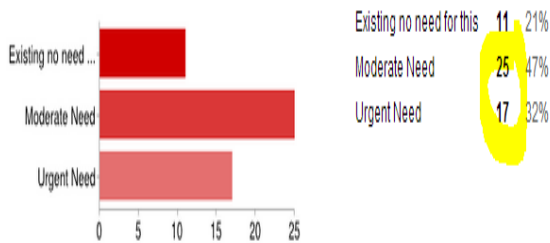
Findings above show that IT students are heavy users of network (7 % plus 24% plus 22%) so an internet/intranet downtime must be minimized (12 % - for 7 to 10 meetings). IT user have achieved the basic functionality of SAP B1. But they still prefer multi user set-up as indicated by findings below.

Finally the findings below shows the clamor for an improved intranet/internet connectivity for backup and file transfer.

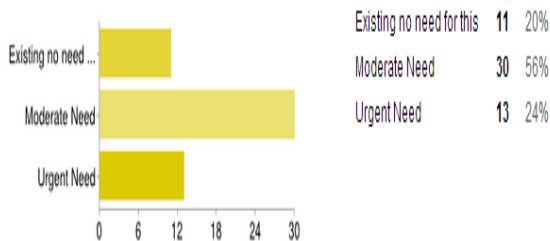
provision for a server backup or other means [Please assess the following SAP technical features]



improved network connection for file transfer (uploading/downloading) [Please assess the following SAP technical features]



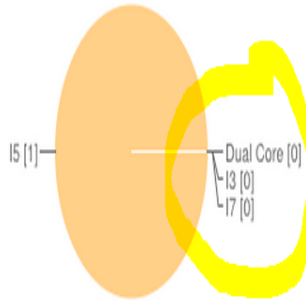
Improved processor for workstation [Please assess the following SAP technical features]



Findings on Mr. Mazaredo's Response

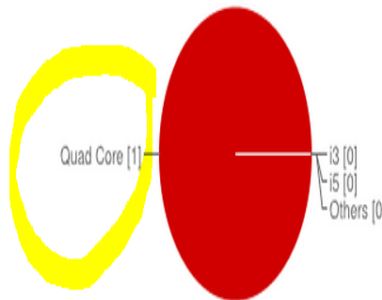
1. Choice of Laboratory Room

What processor is used by 82 D



Dual Core	0	0%
i3	0	0%
i5	1	100%
i7	0	0%

What processor is used by 82 H currently



Quad Core	1	100%
i3	0	0%
i5	0	0%
Others	0	0%

The popular choice for the students using room 82H is corroborated with the response of Mr. Mazaredo.

2. Set-UP of Software and Database

How long will it take to install a complete package of SAP Business One 8.82

00: :_ | 00:45:00

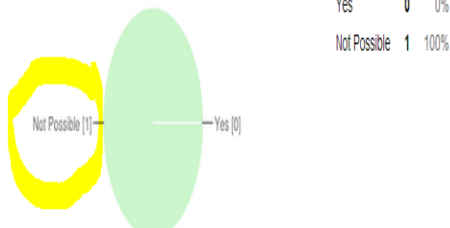
How long will it take to install a complete computer software package (O.S. , SAP and other softwares used by other laboratory classes)

05: :_ | 05:00:00

How many other classes uses the localhost(used by individual SAP workstation)



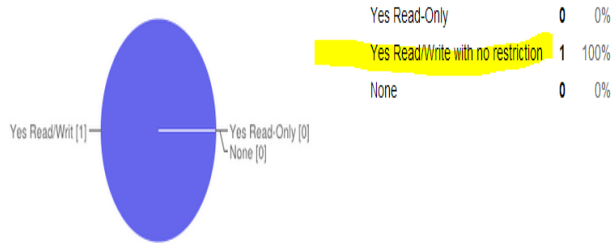
Is it possible to attach an SAP Company Database (Ver 8.22) to an email



Findings show that an installation time of 45 minutes is very long. This does not include the installation of other software used by other laboratory subject. An alternative way of installation must be considered. Additionally, SAP database cannot be attached to an email. Another alternative must be considered.

3. Alternative way of Installation and other Findings

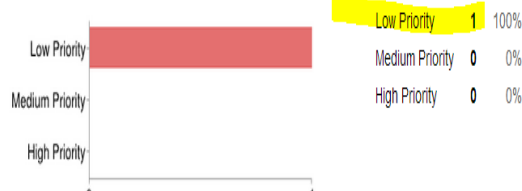
Is there an existing file server that can be used by student



Use of a Disk Image for Recovey [Kindly fill up the following in terms of priority in case a SAP workstation crashed]



Full Installation [Kindly fill up the following in terms of priority in case a SAP workstation crashed]



The findings made on the student survey (use of file server) are corroborated by Mr. Mark Mazaredo. There is an existing File Server but there is no password protection. Anybody can overwrite or even delete the work of anybody. It is a clear indication that the student file is not secured. Additionally, without a backup

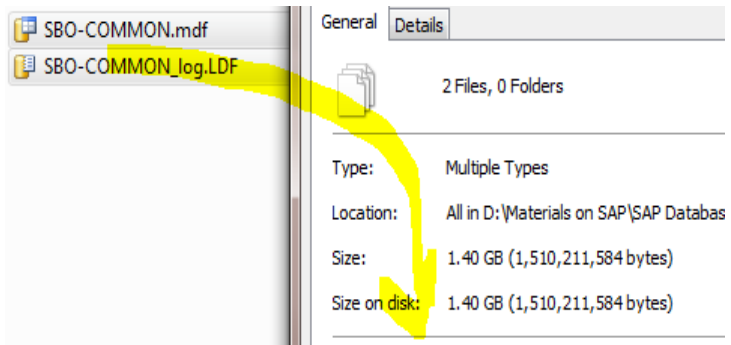
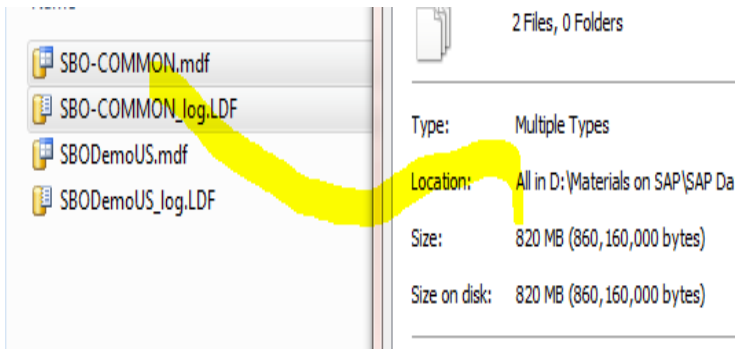
workstation, the only way to clearly facilitate the issuance of another workstation for student use is for the use of Cloning (a technology in which a computer resources is copied directly to another computer and thus overwriting any document on the target computer).

4. Results from Experiments

The table below shows the experiment made by the researcher.

	SAP Version 8.0	Version 8.82
Size of SBO Common	820 MB	1.40 GB
Uploading of company database including to a test file server in SBCA	2 minutes	2 minutes
Uploading of a company database to Google drive	15 minutes	18 minutes
Downloading of a company database from a test file server in SBCA	2 minutes	2 minutes
downloading of a company database from Google Drive	15 minutes	15 minutes
Attaching of a company database including SBO common to an email	Not applicable	Not applicable

Presented below is the actual size of SBO Common file for version 8.80 and 8.82 respectively



The experiment was done during a non-peak period (a time in which there is no one using the internet connection in 82D). It proves that the uploading and downloading time from the server of an average of 15 minutes is too much for a 1 ½ - hour SAP B1 class. The only possible option is the use of a secured file server as indicated by the 2- minute access time.

Conclusion and Recommendation

The findings shown lead the researcher to come up with the following conclusions and recommendations:

1. The student does not have a clear policy on the saving and backup of database.

Recommendation:

A clear cut policy from the IT department is needed for this.

2. The safest way to secure the company database is to detach it and put it either on the file server, cloud tools or flash drive. However, each of the three aforementioned methodology has its own PROS and CONS as explained in the following table:

Methodology	PROS	CONS
Flash drive	Fast and readily available	Might trigger the population of viruses
File server	Fast	Not secure
Cloud tools	Secure	Will allot considerable time
Local drive	Fast	Not secure

Recommendation

Methodology	Recommendation (depending on the policy to be approved)
Flash drive	Increase anti -virus protection or a policy in which the computer laboratory is responsible for uploading and downloading from the flash drive
File server	A secured configuration for a file server (with shared folder resources for each student protected by individual password

Cloud tools	No possible recommendation because it might mean changes on the functionality of the curriculum (increase on laboratory hours which is not part of the technical portion or the study itself)
Local drive	Setting several users with standard user access (protected by a password) . Regular backup will be done by the computer laboratory staff.

3. The existing I.T. resources are not feasible for a multi user environment set-up for a company database. A database server is needed for this particular requirement.

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- Don McGrath Two tiered and Three Tiered Architecture URL <http://stackoverflow.com/questions/2199176/explain-the-different-tiers-of-2-tier-3-tier-architecture>
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