NETWORK MANAGEMENT, DATA CENTRE INFRASTRUCTURE AND MIKROTIK ROUTER CONFIGURATION IN SONALI BANK

BY

MD. EMON HOSSAIN

ID: 163-15-8348

This Report Presented in Partial Fulfillment of the Requirements for the

Degree of Bachelor of Science in Computer Science and Engineering

Supervised By

GAZI ZAHIRUL ISLAM

Assistant Professor

Department of Computer Science and Engineering

Daffodil International University

DAFFODIL INTERNATIONAL UNIVERSITY

DHAKA, BANGLADESH

SEPTEMBER 2019

APPROVAL

This Intern titled **"Network Management, Data Center Infrastructure and MikroTik Router configuration in Sonali Bank"** submitted by Md.Emon Hossain, ID No: 163-15-8348 to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering (BSc) and approved as to its style and contents. The presentation has been held on date.

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_____

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Faculty of Science & Information Technology
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Md. Tarek Habib   **Internal Examiner**
Assistant Professor
Department of Computer Science and Engineering
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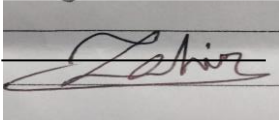Department of Computer Science and Engineering
Jahangirnagar University

DECLARATION

I am declaring in this report my work, this internship report is done by me under the supervision of **Mr. Gazi Zahirul Islam, Assistant Professor, Department of Computer Science and Engineering**, Daffodil International University, in partial fulfillment of the requirements for the degree of Bachelor of Science in Computer Science and Engineering.

Supervised by:

Gazi Zahirul Islam
Assistant Professor
Department of Computer Science and Engineering
Daffodil International University

Co-supervised by:

_____

Md. Tarek Habib
Assistant Professor
Department of Computer Science and Engineering
Daffodil International University

Submitted by:

_____

Md. Emon Hossain
ID: 163-15-8348
Department of Computer Science and Engineering
Daffodil International University

ACKNOWLEDGEMENT

First of all, I would like to express my heart felt gratitude to my honorable supervisor **Mr. Gazi Zahirul Islam, Assistant Professor,** Department of Computer Science and Engineering, Daffodil International University, Dhaka for his whole-hearted supervision. His understanding, encouragement, guidance and instructions throughout the progress of the internship and report writing have provided a good basis for this work. His inputs during the development of the ideas in this report have contributed substantially to the completion of this work.

I would also like to extend my thanks to all others who have encouraged and have provided support directly or indirectly, throughout my internship. I am grateful to Sonali Bank limited for giving me an opportunity to do internship under its IT Operations Center. A lot of supportive person helped me during the time of writing the report by providing data, and information, procedure as well as the management process when required, and made me clear different concept clearly.

I also would like to express our heartiest gratitude to Dr. Syed Akhter Hossain, Head the Department of CSE for his kind help to finish my Internship and also to other faculty member and staff of CSE department of Daffodil International University.
I would like to express special thanks to my parents for their encouragement during all the hard times in my life and my career.

Finally, and with special recognition, I want to convey my deepest regard to the Almighty Allah, the beneficial, the magnificent.

ABSTRACT

Sonali Bank Limited is one of the recognized banks in our country. Banking sector in Bangladesh has been pursuing the policy of expansion and growth of branches. People and the government itself are very much dependent on the service provided by banks in the financial markets. To know how well commercial banks perform actually No country can do itself without interaction with other countries in any respect. The main reason behind it is that no country is self-sufficient with everything it requires to provide its people. One country can be able to produce some item more in amount than it needs. Everybody though linked with international trade somehow in the globalization era today, This study has intended to serve that purpose of giving an overview of import export procedures along with a highlight on foreign remittance and that from Sonali Bank Limited, Local office perspective. The study gives an insight into the procedures and formalities maintained by Sonali Bank Limited in handling international trade-import, export, along with foreign remittance. The study has been conducted largely depending on secondary data sources such as manual, annual reports, and other documents.

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CHAPTER 01

INTRODUCTION

1.1 Introduction

My internship main purpose in Sonali bank was to achieve good experience in practical fields to spread knowledge pertaining data centre management, networking operations and use tools in Network centre of a bank. This is a huge advantage to gather in practical field to gain knowledge about data centre. And uses of many tools in Network Operation of a bank.In the field of CSE Department, how to convert analogue and digital communication systems,

Transfer information and communication computer networks provide a resourceful appendage to relevant learning and understandings. Practical experience through internship in data centre management is a profound and apt way of accumulating necessary expertise as a student of Computer Science and Engineering. In the field of Computer Science and Engineering, ideas at simple and computerized correspondence frameworks, data handling and PC correspondence systems give a clever member to applicable learning and understandings. Down to earth involvement through entry level position in server farm the executives is a significant and adept method for collecting vital mastery as an understudy of Computer Science and Engineering.

1.2 Motivation

For internship is better place for building work experience in professional life. And achieve good discipline. It is a momentary commitment more often than not performed to satisfy scholastic prerequisites. An entry level position is an astounding path for an assistant to validate the believability of picked profession alternative to seek after. It really creates proficient work propensities, giving a comprehension of corporate societies and condition. It can likewise be an open door enhancer for a future all day work, It is vital to reporter to the hypothetical foundation given by the college with the down to earth working condition, which can be accomplished appropriately with a temporary position.

1.3 Internship Benefits

It is beneficial for both the intern and the organization in a way that through internship, an intern gets to enrich practical working knowledge by relating it to the theoretical education provided and on the other hand, an organization can have interns hired for a lesser convenient remuneration. However, additional benefits can be determined for the part of the intern, as follows-

- Gain valuable work experience. Internship provides first-time working experience.
- Internship helps build up confidence within a student to become a successful employee.
- Network with professionals in the field.
- Internship helps to give yourself an edge in the job place.
- Internship develop and define skills for the future in better positon.
- Explore a career path in networking expert.
- Internship is a also testing field of a student's practical knowledge.

1.4 Expected Outcome

After finished my internship want to be network expert for future life in my carrier,

It is helpful to get job, so good experience can be help to get better position,

1.5 Report Layout

Chapter 1 focuses on the introduction, internship motivation, benefits of internship.

Chapter 2 highlights on about Sonali Bank, Bank's Mission, Related Works, Scope of problem, Milestones in the development.

Chapter 3 discuses about Network Infrastructure, Network Management, Branches Support, LAN and WAN Monitoring.

Chapter 4 details in Data Centre management, component of Data Centre.

Chapter 5 focus on MikroTik Installation, configuration, virtual machine uses.

Chapter 6 discuses about Conclusion and Future Career, experience, outcome in this Internship.

CHAPTER 02
ORGANIZATION PROFILE

2.1 About Sonali Bank Limited

Sonali Bank Limited the biggest state possessed business bank of Bangladesh. It was built up by assuming control over the parts of National Bank of Pakistan, Sonali Bank Limited is administered by a Board of Directors comprising of 13 individuals selected by the administration. The Bank is going by the Chief Executive Officer and Managing Director. President is helped by 3 Deputy Managing Directors, 13 General Managers and other Senior Executives. The corporate central station of the bank is situated at Motijheel, Dhaka, The fundamental business focal point of the capital. It has 6 GM level workplaces in 6 Divisions, 42 Principal and 39 Regional Offices at region level. Inside the nation Sonali Bank Limited has two workers branch and 43 approved sellers to direct remote trade business. It has an abroad financial exchange plan with 577 reporters. In 1994, the bank set up in New York an undeniable backup organization of the name the Sonali Exchange Company Inc. to extend its support in global banking. The Bangladeshis who working in USA send settlements through this association which is worked with its major office at Manhattan, New York city and branches/corners at Brooklyn, Astoria, Jackson Heights in New York, Peterson in New Jersey, Atlanta in Georgia, Detroit in Michigan and Los Angeles in California [1].

2.2 Bank's Mission

The Bank's Mission is to furnish administration to our customers with the assistance of a gifted and devoted workforce whose inventive abilities, creative activities and focused edge make our position one of a kind in giving quality support all things considered and people.

- Committed to broaden an entire scope of value items that help disparate needs of individuals targeting improving their lives, making an incentive for the partners and contributing towards financial improvement of the nation. Socially committed leading banking institution with global presence.

- The bank is committed to the welfare and economic prosperity of the people and the community, for we derive from them our inspiration and drive for onward progress to prosperity.
- In an intensely competitive and complex financial and business environment, the bank particularly focuses on growth and profitability of all concerned [2].
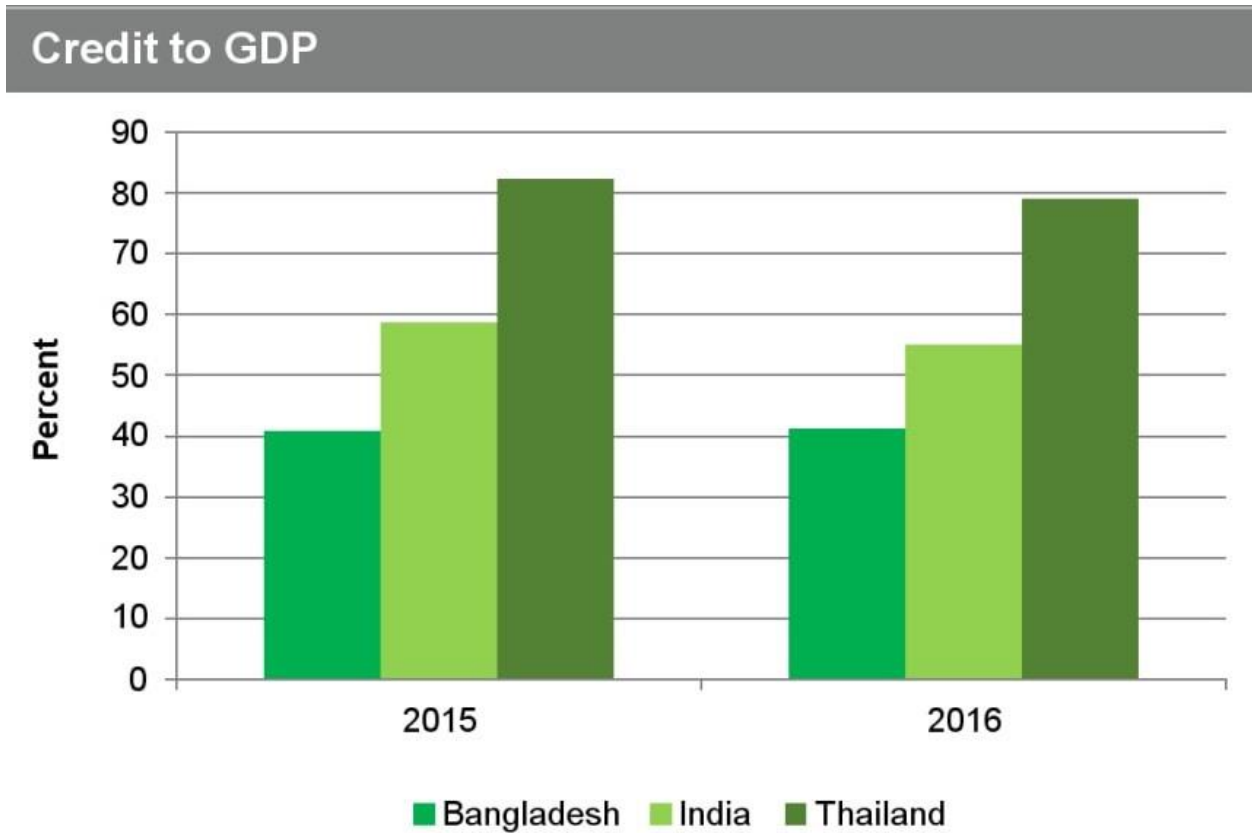
Credit to GDP

Figure 2.1 Bank Development

2.3 Related Works

Sonali bank is an owned leading commercial bank in Bangladesh. It is the largest bank of the country. There have an Information Technology Division,

- Infrastructure IT
- Business IT
- IT services Management
- IT Procurement and Maintenance

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- Information Security

Infrastructure IT:

This IT section provide Internet LAN connection in Main branch, Network management control all type of thread in Networking system and mainly control in Data center where all data have store in this data center, firstly I worked for LAN connection

- A new LAN connection and IP provided in common division.
- Internet connectivity made active after two new LAN connection provided through new LO rack.
- Provide regular telephony and physical support as well as maintenance in Executive chamber of Head Office different division of HO and LO.
- Wifi connection was reset and configuration then working properly in GM chamber.
- A modem set-up and three LAN connections provided for gold fair feasible for Sonsli bank stall in Hotel Continental International, Dhaka
- LAN connection made up in CAD payment due to looping problem.

2.4 Scope of the Study

As I was an intern, my degree was compelled and kept for reasons unknown. I had kept up some official custom for the social event of data of my report. This assessment will give an undeniable idea with respect to the budgetary introduction of Sonali Bank Limited similarly as the assorted portion of different things and organizations of Sonali Bank Limited. At long last the money related position of the bank in the monetary business reliant on its latest multi year's introduction.

- Information availability for Financial and Networking.
- With Good communication and behavior.
- Gaining knowledge of wide area.
- Good working environment.

2.5 Scope of the Problem

In networking system always faced in many type of problem, so it is hard to realize that problem. Sonali bank has total 1250 branches and all are connected to the network, there has branches support for the LAN and other networking problem, as like

- Main power switch off in this router.
- Network buffering,
- Highly data loss 15-30% for transferring data.
- Cable does not work properly.
- IP configuration changed.

2.6 Milestones in the development of Sonali Bank

Sonali Bank was built up in 1972 under the Bangladesh Banks (Nationalization), Islamic banking: In 2010, Islamic banking was propelled in 5 parts of various locale of the nation through Sonali Bank. In 2009, again Islami banking was propelled in six different parts of Sonali Bank in various locale the nation over.

CHAPTER 03
NETWORK INFRASTRUCTURE

3.1 Network Infrastructure in Sonali bank Limited

In an IT segment, Network foundation, the first and principal component of Networking Management System, comprises of all gear, frameworks and administrations for guaranteeing the consistency in the activities of the IT division inside an association.

People with specialized and administrative fitness use Network framework components to give standard and shared administrations to firm-wide and business-explicit applications, at the administration levels required, as indicated by models characterized in the foundation.

Inside system framework, the innovation segments are associated with modern just as open foundations through the characterized IT principles. Notwithstanding specialized IT administrations, human administrations, for example,

venture the board, venture taking care of, venture supervision and so forth can be given as a piece of system framework administrations [4].

Sonali Bank distributed into the following categories—

- Network Management
- Hardware Management
- Data Centre Maintenance
- Internet Support
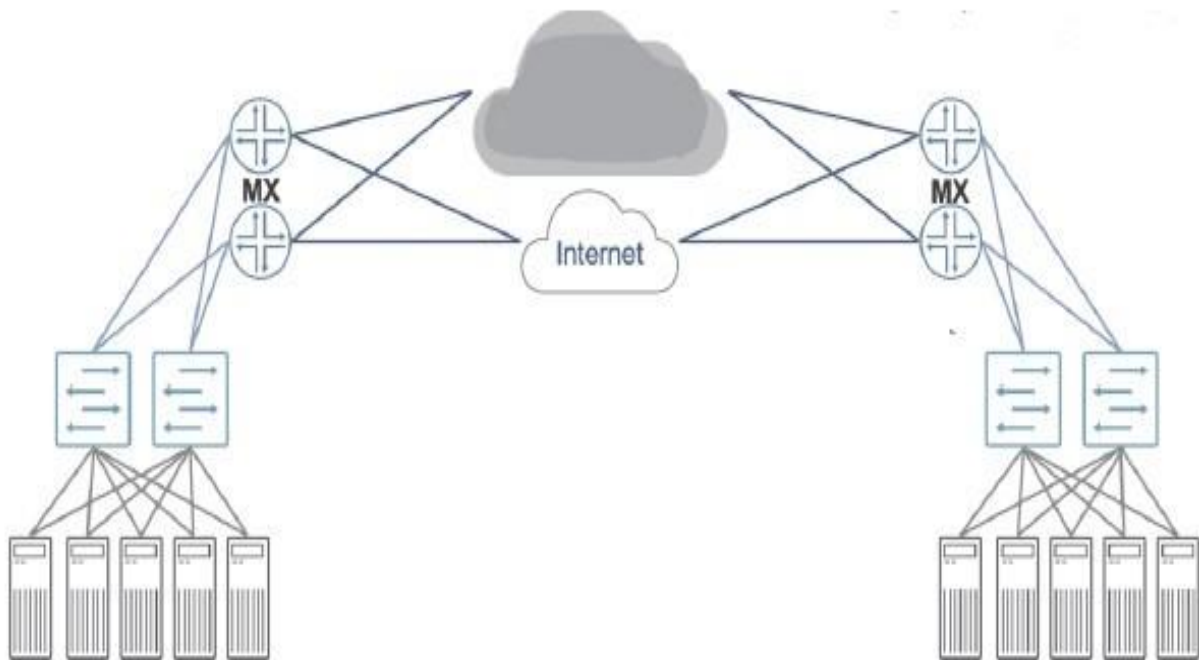- Branch Support
- Mail Server

Figure 3.1 Simple Infrastructure in SBL Data Center

Sonali bank data center is an important part of the bank sector. Which is control by the transaction save the data. Sonali bank has personal mail server they can sent the information by this mail so it is secure to information passing. In this data center there has every two tools with cross connection, if one firewall was not working another is work properly that's why. Does not any chance to missing data from here.

That is connected to the internet then firewall check the data security from any thread hacker cannot access in the data store to hack the all information.

Sonali bank has two data center one is at Sonali Bank Head office.Motijheel another is at Sonali bank staff quarter.Uttora [5].

3.2 Network Management

Network Management the board is a joined term which contains the activity, techniques, tools, strategies, and apparatuses for performing various activities inside a systems administration framework. System Management is includes—

- Network planning,
- Network monitoring
- Network designing, implementation and configuration

Fault management:

The way toward recognizing and finding deficiencies in the system. This could incorporate finding the presence of the issue, distinguishing the source, and potentially fixing (or if nothing else disengaging the remainder of the system from) the issue.

Configuration management:

The way toward distinguishing, following and altering the arrangement of gadgets on the system. This class is critical for gadgets that accompanied various custom settings

Security management:

The way toward controlling (giving, constraining, confining or denying) access to the system and assets consequently. This could incorporate setting up and overseeing access records in switches (making "firewalls" to keep interlopers out), making and keeping up secret word access to basic system assets, distinguishing the purposes of section utilized by gatecrashers and shutting them.

Performance Management:

The way toward estimating the exhibition of different system parts. This likewise incorporates taking measures to enhance the system for greatest framework execution (occasionally estimating of the utilization of system assets [8].

3.3 Configure of Network Element

Figure 3.2 Connector Cable

This is a cable connector that has one port connect in juniper switch and another port is connected to PC, It has many type equipment 10G optics, 10G OSPF+ optics, 10G DAC, 40G DAC, all are connect each other then it can be configure every port one by one,

Figure 3.3 Juniper configure with Putty

When we configure switch we are use PuTTY to access this juniper switch and configure port by port accordingly, Putty used for configure switch, it can be access directly with this option,

- Raw
- Telnet
- Rlogin
- SSH
- Serial

3.4 Branches Support Software

Solarwinds Inc. is an American organization that creates programming for organizations to help deal with their systems, frameworks, and data innovation foundation. Solarwinds is headquartered in Austin, Texas, with deals and item advancement workplaces in various areas in the United States and a few different nations around the globe Sonali Bank has an aggregate of 1215 branches.
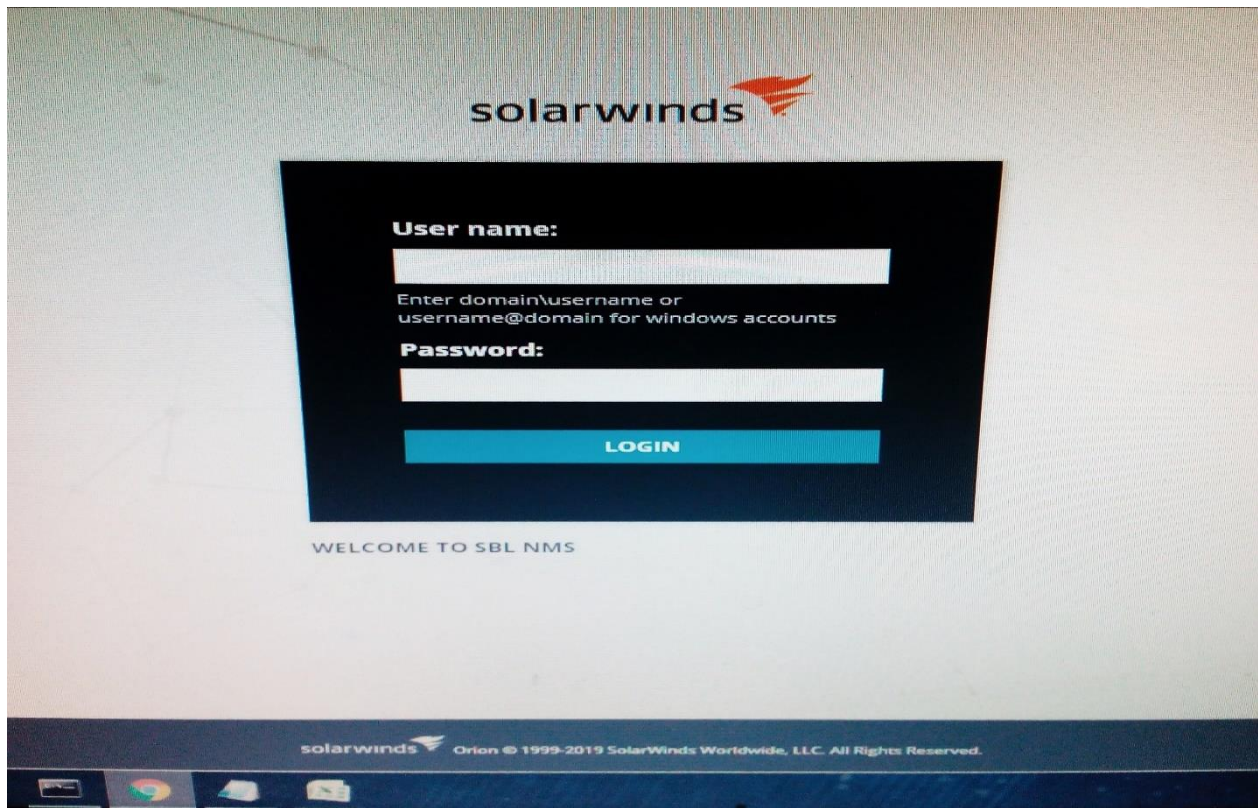

Figure 3.4 Solarwinds Software

Out of them, 467 are situated in urban territories, 746 in country territories, and 2 are found abroad (India). It additionally works the Sonali Exchange Organization Inc. in USA and Sonali Bank (UK) Ltd., United Kingdom, to encourage remote trade settlements.

This branches has many problem for internet connection sonali bank head office supported team solve this problem quickly, if it was not physical problem in this branch. Supported team check this connection with his branch LAN IP in this software, if does not work properly something problem for physical connection, Solarwinds software check this and inform to vendor with mail. For dropping and another problem and as soon as possible vendor solve this problem [9].

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Figure 3.5 Summary Page
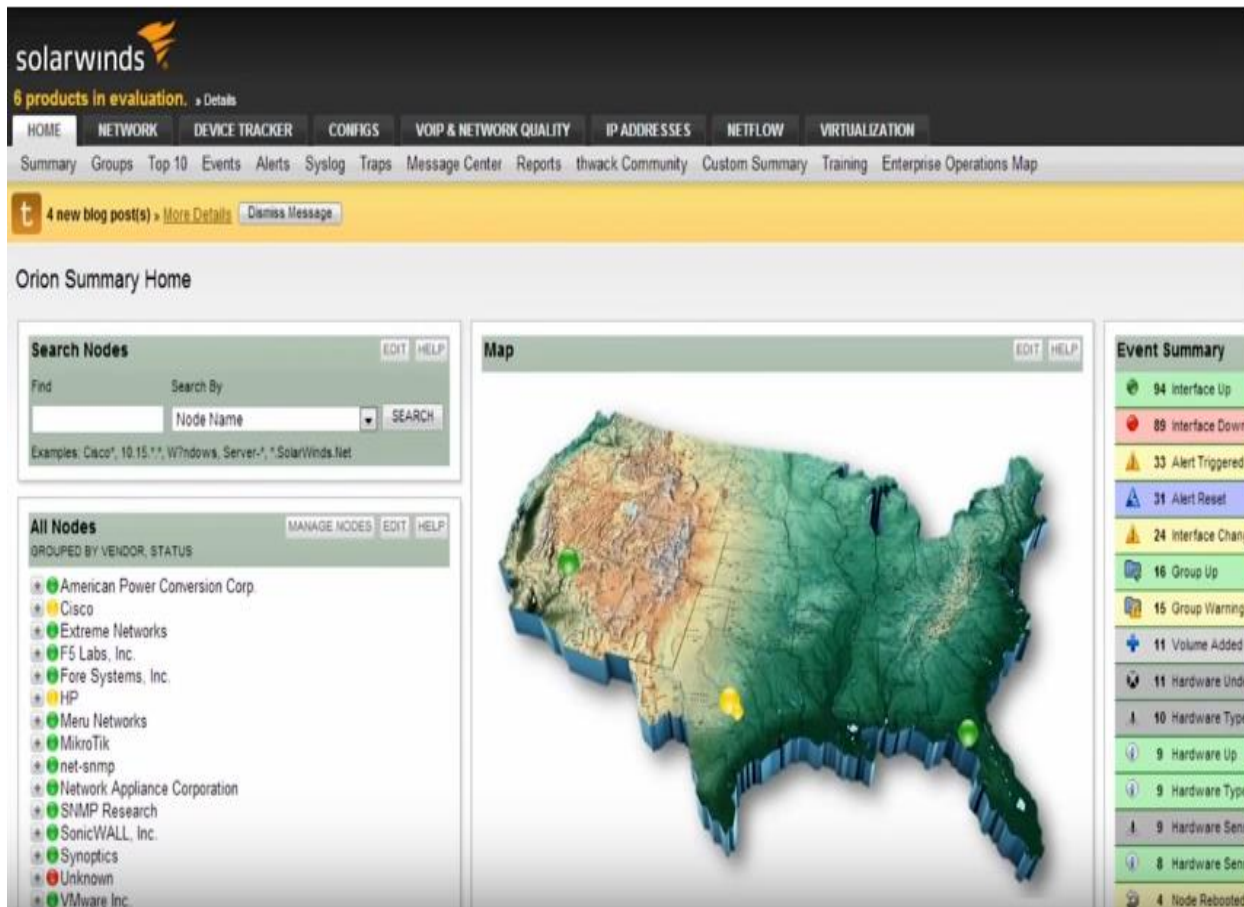
The first page is user come to access in NPN summary page, the summary page gives you high level overview to identify any problem within environment. There have all the node to explain the grouping any other details. Location from by any custom property define by the user. Identify the active alert by the system. As we can see the cisco certified 3750

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Figure 3.6 Troubleshooting chart

In this drag able chart show the trouble in a particular way 1h/12h/24h single data point zooming
Sort can easily be exported in packet losses. Network topology information show the network
performance layer1 layar2 CDPN allow DPN information that's are connected network
This information is also used to network allows to quickly create network maps.
There have details page to know the health of the network.

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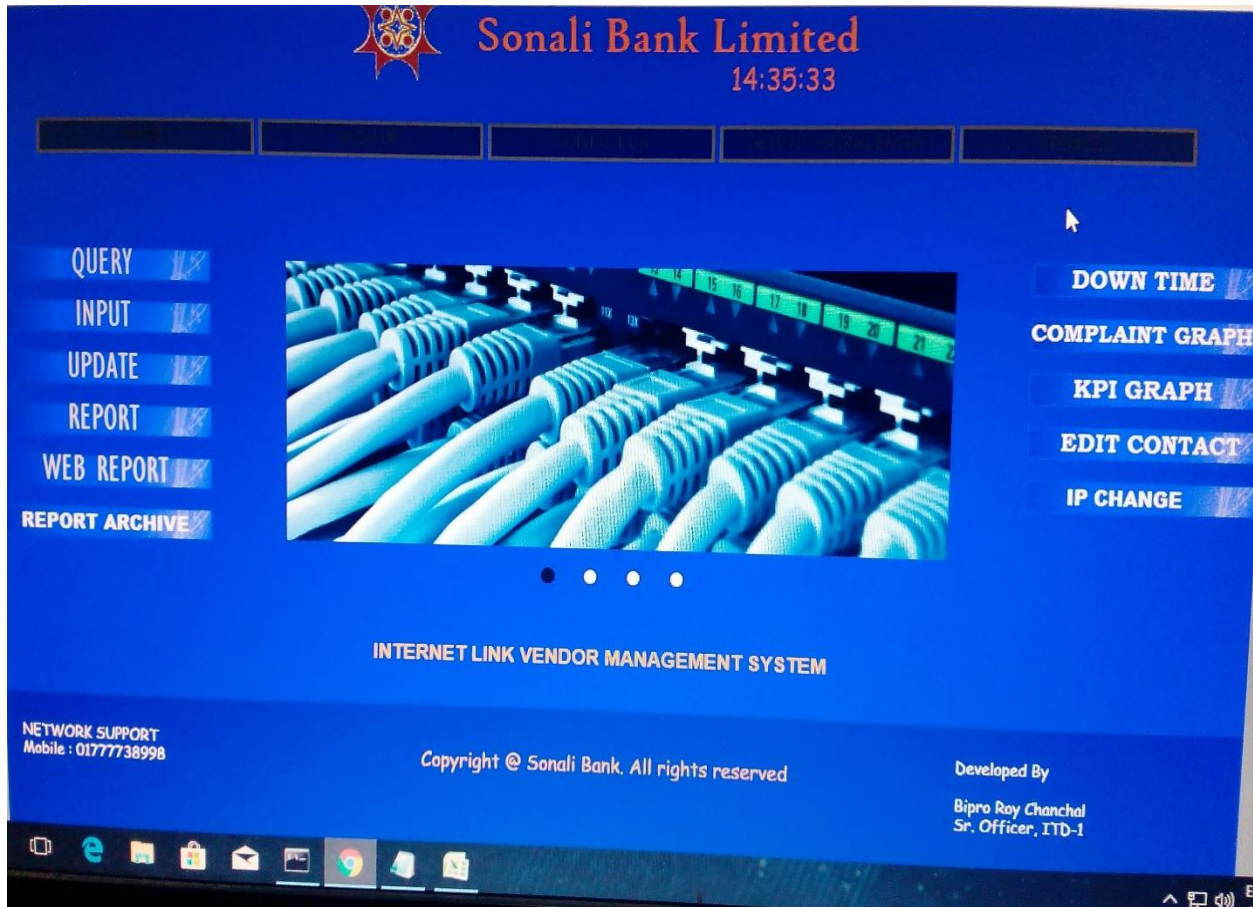
Figure 3.7 Query. Down Link Check. Report

In this software. Support team check the branch with branch code if they got any problem then report the specific vendor support team which is connected to this branch. Check the all branch Down Link and mail to the vendor. They reply solving the problem with in a minute or hour. So branches got the support all time. For his internet problem in this Head office.

This is very hard to control 1215 branches that's why many officer work in this place in this team.

3.5 LAN and WAN Monitoring

System traffic observing is the way toward estimating, controlling and following the sum and method of correspondence to and from a system. A legitimate observing of the system traffic is suitably important with the goal that the data transmission allotted to various areas of any association is used to guarantee quicker and effective access to both the web and the intranet. More often than not, Network traffic checking is performed through different techniques, for example [7].

LAN and WAN monitoring means in networking-

- Always screens a PC connect with specific administration programming instruments to guarantee its ideal proficiency
- Searches out for any segment issues brought about by over-burden frameworks, smashed servers, lost system associations, infection or malware diseases, control blackouts, damage, catastrophic events and so on.
- Advises the system head of part issues inside the observed system, utilizing distinctive notice procedures like email, telephone call, caution and so forth
- Gives measurable reports to web exercises like sending/accepting messages, site visits, transfers/downloads and so forth.

3.6 Vendor for service provider

- ADNT
- AGNI
- BDCOM
- BRACNRT
- DRIC-ICT
- GP-AND
- GP-AGNI
- INNOVATIVE ONLINE
- METRONET
- RANKSIT

In this vendor work in separately under the sonali bank. It was work with randomly in many branches, they are also connected to branches security but they cannot access in the root of network.

3.7 Sonali Bank Limited All Division

- Information Technology Division
- Card Division
- Reconciliation Division
- MIS and Statics Division
- External Audit Compliance Division
- Small and Medium Enterprise Division
- Discipline and Appeal Division
- Public Relation's Division
- Business Development Division
- Central Accounts Division
- Loan Classification Division
- Loan Recovery Division
- Government Accounts and Services Division
- Tragedy Management Division
- Branches Control Division
- International Treed Finance Division
- Money Laundering Division
- General Advantage Division
- Risk Management Division
- Agro Based Finance Division
- Industrial Project Finance Division
- And More.

3.8 Sonali Bank Limited Banking Facilities

- Personal Banking
  - ➢ Transfer of fund from one branch to another
  - ➢ Transfer of fund on standing Instruction Arrangement
  - ➢ Collection of cheques through Clearing House
  - ➢ Issuance of Payment Order / Call Deposit
  - ➢ Locker facilities for safe keeping of valuables

- Rural Credit
- International Banking
  - ➢ Products and services
  - ➢ Import Finance
  - ➢ Export Finance
  - ➢ Interest Rate

- Industrial Financing
  - ➢ Thrust Sectors
  - ➢ Other Viable Industrial Sectors

- Deposit & Credit Schemes

  Credit
  - ➢ House Building Loan
  - ➢ Special Small Credit
  - ➢ Consumers Credit
  - ➢ Loan for Diagnostic Center
  - ➢ IT Finance

  Deposit
  - ➢ Sonali Deposit Scheme (SDS)
  - ➢ Educational Deposit scheme(EDS)

- Medical Deposit Scheme(MDS)
- Rural Deposit Scheme(RDS)
- Monthly Earning Scheme(MES)
- Sonali Bank Daily Profit(SBDP)

- SME Banking
  - Commercial Loan
  - Project Loan
  - Transport Loan
  - Retailers Loan

- Foreign Currency A/C
  - Any individual/firm/association who procures remote cash can open Foreign Currency Account with Sonali Bank Limited.
  - Enthusiasm for remote cash is paid in this record if the deposit are for a term of at the very least one month and the equalization isn't not exactly US$ 1000 or GBP 500 or its proportional.

- Investment Bond

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- Micro Credit

SL.	Project/Programs	Target group	Loan size in Tk.	Rate of Interest(%)
A. Bank's own Program				
1	Bank-NGO Linkage wholesale Credit.	Poor people	According to project size	13
2	Credit for Urban women Micro Enterprise Development-CUMED	Urban women Enterpreneurs	Highest - 5,00,000	12
3	Goat Rearing	Small & Medium Enterpreneurs	According to project size	12
4	Swanirvor	Poor Landless people	Highest - 40,000	11
5	Unmesh	Micro Enterpreneurs	Highest - 50,000	12
6	Daridra Bimochane Sahayta Rin	Hard core poor	Highest - 50,000	11
7	Rural small Business	Small Enterpreneurs	Highest - 50,000	12
8	Small Farming Loan	Small Enterpreneurs	Highest - 50,000	12
9	Loans for SIDR affected Area	SIDR affected People	Highest - 20,000	08
10	Marginal and small Farms System Crop Intensification Pro.- MSFSCIP	Marginal,poor & small farmer	Hightest - 10,000	11
11	Crop Godown credit project	Small & Medium farmer	Highest - 10,000	11
12	Herbal, Forestry, Medicinal and Nursery development Credit	Poor energetic youth	Highest - 25,000	11
13	Loan to Salt Growers	Actual Salt producer	Highest - 44,000 per acre	12
14	Loan for disabled people	Disabled people	Highest - 50,000	08
15	Sonali Bank-BARD, Comilla Priogik Gabesana Rin Prokalpa	Bittahin rural male & female	Highest 10,000	10
16	Sonali Bank-RDA, Bogra Priogik Gabesana Rin Prokalpa	Bittahin rural male & female	Highest - 10,000	10
17	Jago Nari Grameen Rin Karmachuchi	Bittahin rural female	Highest - 25,000	11
B. BRDB-UCCA				
1	BRDB Crop Lending	Small & Medium farmer	Highest 8,000-15,000	10
2	Shrimp Culture	Small & Medium farmer	Highest 2,333-28,000	10
3	Wogrmen Development Proam	Co-operative poor female member	Highest 1,500-20,000	9
4	RLP (Rural Livelihood program)	Small & Medium farmer	Highest 5,000-20,000	6.25

Figure 3.8 Micro credit in Sonali Bank Limited

CHAPTER 04

DATA CENTRE MANAGEMENT

4.1 Introduction of Data Centre

A Data Center is a brought together supply for the capacity, the executives, and dispersal of information and data composed comparing to a specific assortment of learning or relating to a specific business. There are four essential segments to a Data Center—

Raised floor

The usable raised floor up in a Data Center which is estimated in square feet is named as void area. The raised floor fills in as a chamber to enable air to circle beneath the floor, for a superior cooling framework, It likewise gives space to verified and encased power cabling, to give more space above, if there should be an occurrence of Data Center extension [10].

Support infrastructure

These are the extra space and hardware required to help Data Center tasks. Such gear incorporates, Equipment:-

- Power transformers
- Uninterruptible power source (ups)
- Generators
- Computer room air conditioners
- Remote transmission units
- Chillers
- Air distribution systems, etc.

Data Centre Equipment

- Racks
- Cabling
- Servers
- Storage System
- Security systems
- Network Devices

Support System

The supportive network staff guarantees that the frameworks (both IT and foundation) are appropriately worked, kept up, overhauled and fixed when fundamental.

4.2 Sonali Bank Data Centre Maintenance

Server upkeep is critical in guaranteeing top proficiency of a Data Center. The support procedure in Sonali Bank Data Center is performed by the accompanying advances, Part upkeep
Following basic Data Center segments are appropriately kept up and overhauled.

- Routers
- Switches
- Servers
- Security components
- System resources (memory, storage, CPU, optical drives etc.)
- Operating systems
- Applications
- Accessories

Physical accessories-

- Lighting
- Power systems

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- Fire systems
- Security systems

4.3 Sonali Bank Data centre Equipment's:

Sonali Bank Limited uses an assortment of productive and modern data preparing, systems administration, and stockpiling and security gadgets inside its best in class Data Center. The Data Center is worked under the supervision of the IT Operations Center of the bank. As a piece of my entry level position, I was made acquainted with various parts of the Sonali Bank Data Center, their operational techniques, observing procedure and so on permitted inside Sonali Bank's association privacy approaches.
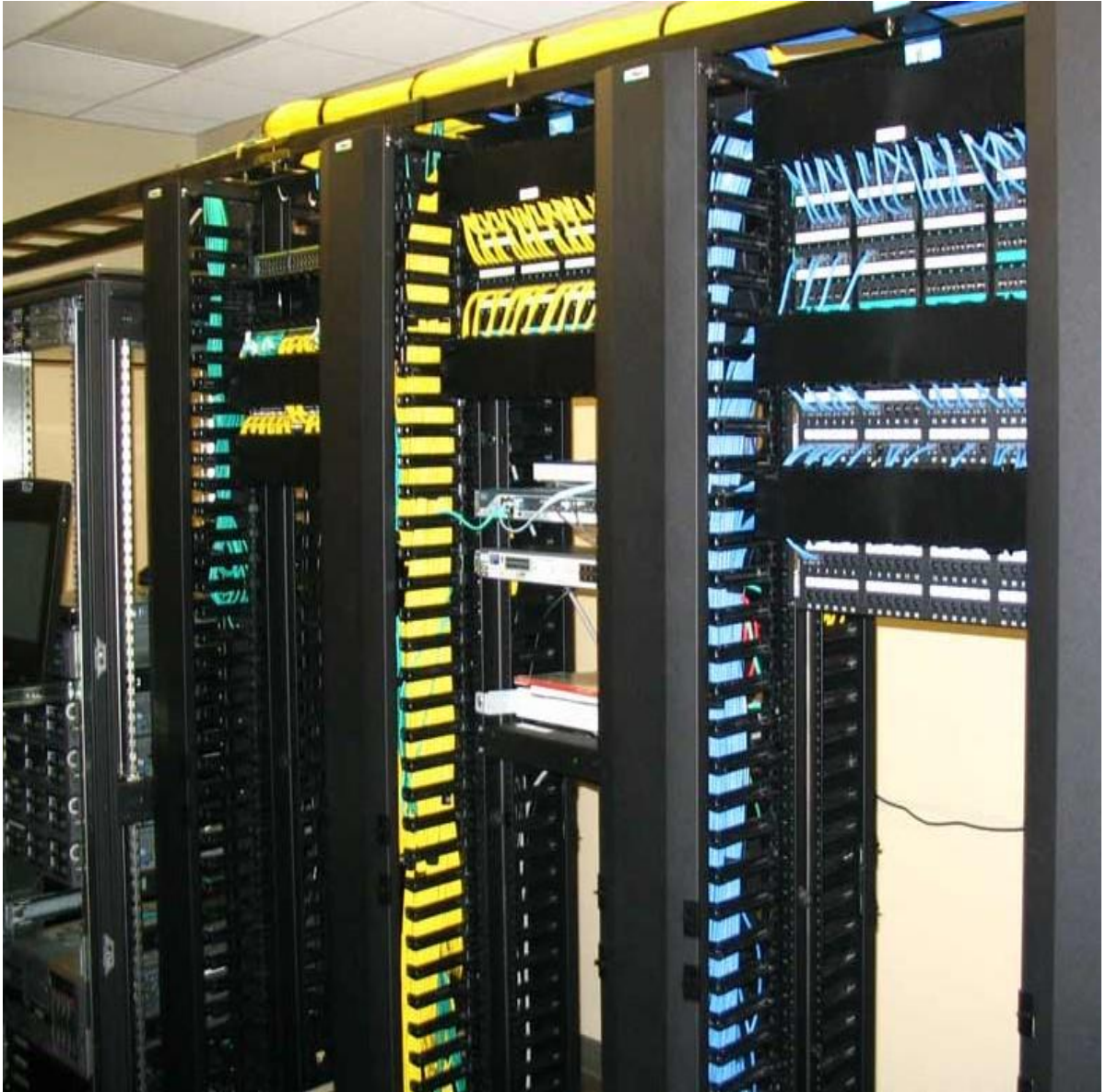
Figure 4.1: Sonali Bank Data Centre

Sonali Bank use this equipment's in this Data Centre-

- Juniper
- IBM
- Cisco
- Microsoft
- APC

4.4 Juniper Component

The EX2300 Ethernet Switch conveys a minimal, high-thickness, savvy answer for little system situations where space and power are at a higher cost than expected. With a little, 1 U impression, the EX2300 is ideal for access-layer organizations in miniaturized scale branches, retail and workgroup situations, and united system access in bigger systems.

Figure 4.2: EX2300 Switch

Two EX2300 switch models are accessible, offering either 24 or 48 10/100/1000BASE-T ports in a solitary stage. The two models are accessible with or without IEEE 802.3af Power over Ethernet (PoE) or 802.3at PoE+ for fueling joined system gadgets.

Discretionary front board 10GbE uplink ports are given to help associations with higher layer gadgets.

Figure 4.3: EX2300 Switch

EX2300 switches bolster Juniper's Virtual Chassis innovation, empowering up to four of the stages to be interconnected and oversaw as a solitary, sensible gadget. The switches can likewise fill in as satellite gadgets in a Junos Fusion Enterprise organization, which enables enormous quantities of access changes to be converge into an intelligent administration stage [3].

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The Juniper MX Series is a family of superior Ethernet Services Routers with ground-breaking exchanging highlights and are intended for elite specialist co-ops and ventures. The MX Series has progressed MPLS, Multicast, Quality of Service, low inertness and security capacities.

It gives adaptability and dependability to help propelled applications and administrations, including fast vehicle and VPN administrations, cutting edge broadband multiplay administrations and high-volume Internet server farm internetworking.

Figure 4.4: MX480 Router

The Juniper MX480 3D Universal Edge Router empowers elite, unwavering quality and versatility for requesting transporter and venture applications.

At eight rack units (8 RU) the Juniper MX480 supports up to five Dense (DPC/E) or Modular Port Concentrators (MPC), and then again, up to 10x Modular Interface Cards (MIC). Being most prevalent of the measured MX arrangement, because of its ideal equalization of size and execution, the MX480 gives adaptable and productive 10GE, 40GE, 100GE directing just as heritage SONET/SDH, ATM and PDH availability. The MX480 likewise supports modern planning and virtualization capacities that disentangle system structure.

Figure 4.5 Juniper Switch

Juniper Networks® SRX3400 Services Gateway and SRX3600 Services Gateway are cutting edge security stages that convey showcase driving execution, versatility and administration combination in an average sized structure factor. These gadgets are in a perfect world appropriate for medium to enormous venture, open segment and specialist co-op systems, including:

- Enterprise server farms/data centers
- Securing mobile operator environments
- Aggregation of departmental or segmented security solutions
- Cloud and hosting provider data centers
- Managed services deployments

In view of a creative mid-plane structure and Juniper's dynamic administrations engineering, the SRX3000 line resets the bar in value/execution for big business and specialist organization conditions. Every administration entryway can support close straight versatility with each extra Services Processing Card (SPC), empowering the SRX3600 to help up to 30 Gbps of firewall throughput. The SPCs are intended to help a wide scope of administrations empowering future help of new abilities without the requirement for administration explicit equipment. Utilizing SPCs on all administrations guarantees that there are no inert assets dependent on explicit

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administrations in activity—amplifying equipment usage

Figure 4.6 Juniper Switch

4.5 Microsoft Elements

Microsoft Windows Server 2012 incorporates Internet Information Services (IIS) 8.0; expanded default security; improved Message Queuing; Administrative devices; Active Directory; circle the executives; reinforcement framework; scripting and order line devices; better Group Policy dealing with and organization and so forth. Sonali Bank Limited hosts Windows Server 2012 in various servers of its Data Center as essential working framework. The Data Center uses two versions of Windows Server 2003 [6].

Server 2012 R2 - Windows Server 2012 R2 incorporates Internet Information Services (IIS) v8.5; decreased power utilization; new administration instruments; new Active Directory abilities; DNSSEC support; encoded VPN administrations; improved DHCP server with better works; IPv4 address depletion and etc.

Figure 4.7: Windows Server 2012

CHAPTER 05

MIKROTIC
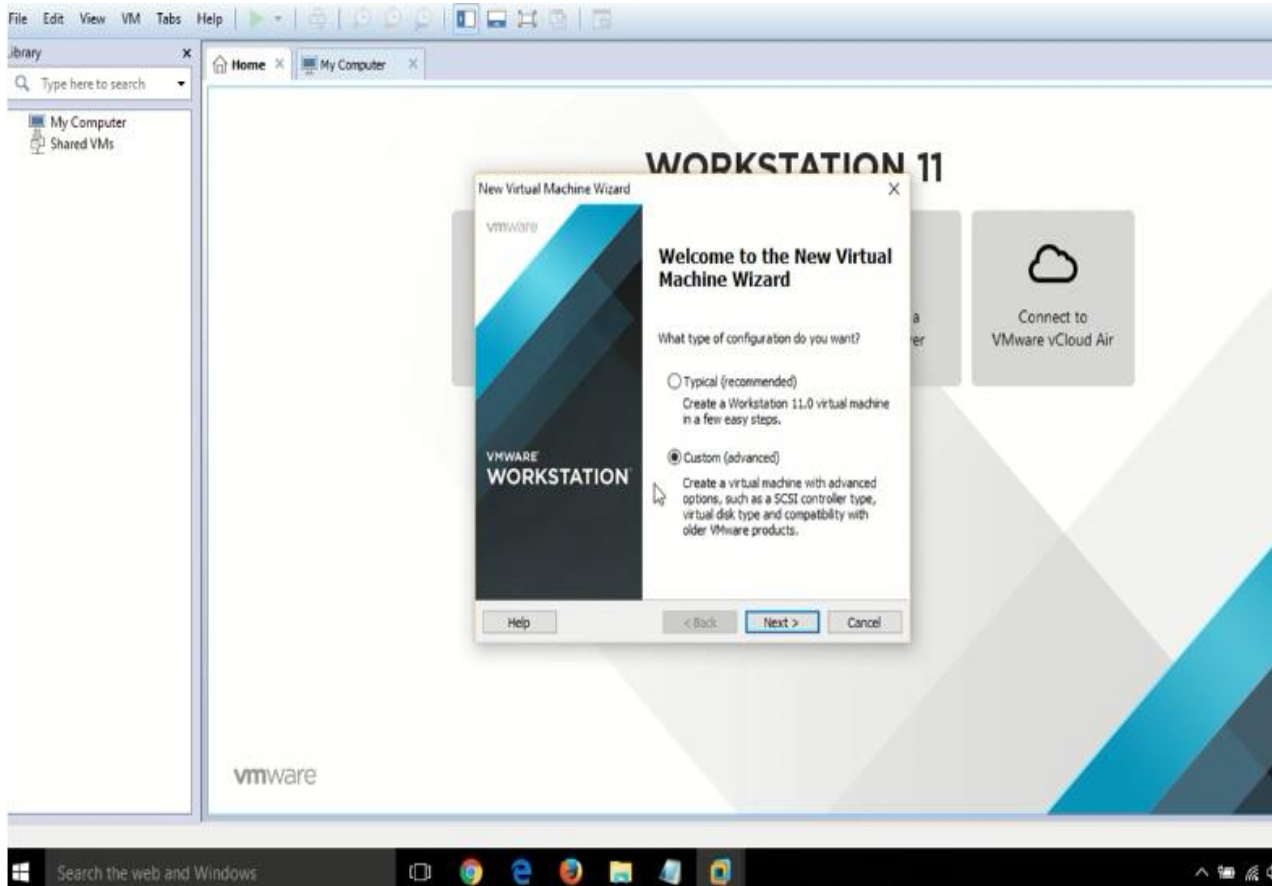
5.1 Installation MikroTik router in VMware workstation

Figure 5.1 VMware workstation

In this software. A virtualization layer keep running on physical servers that edited compositions processor, memory, storage, and assets into various virtual machines. Another Operating System can be install here in this PC, so MikroTic OS easily can be operate in here.
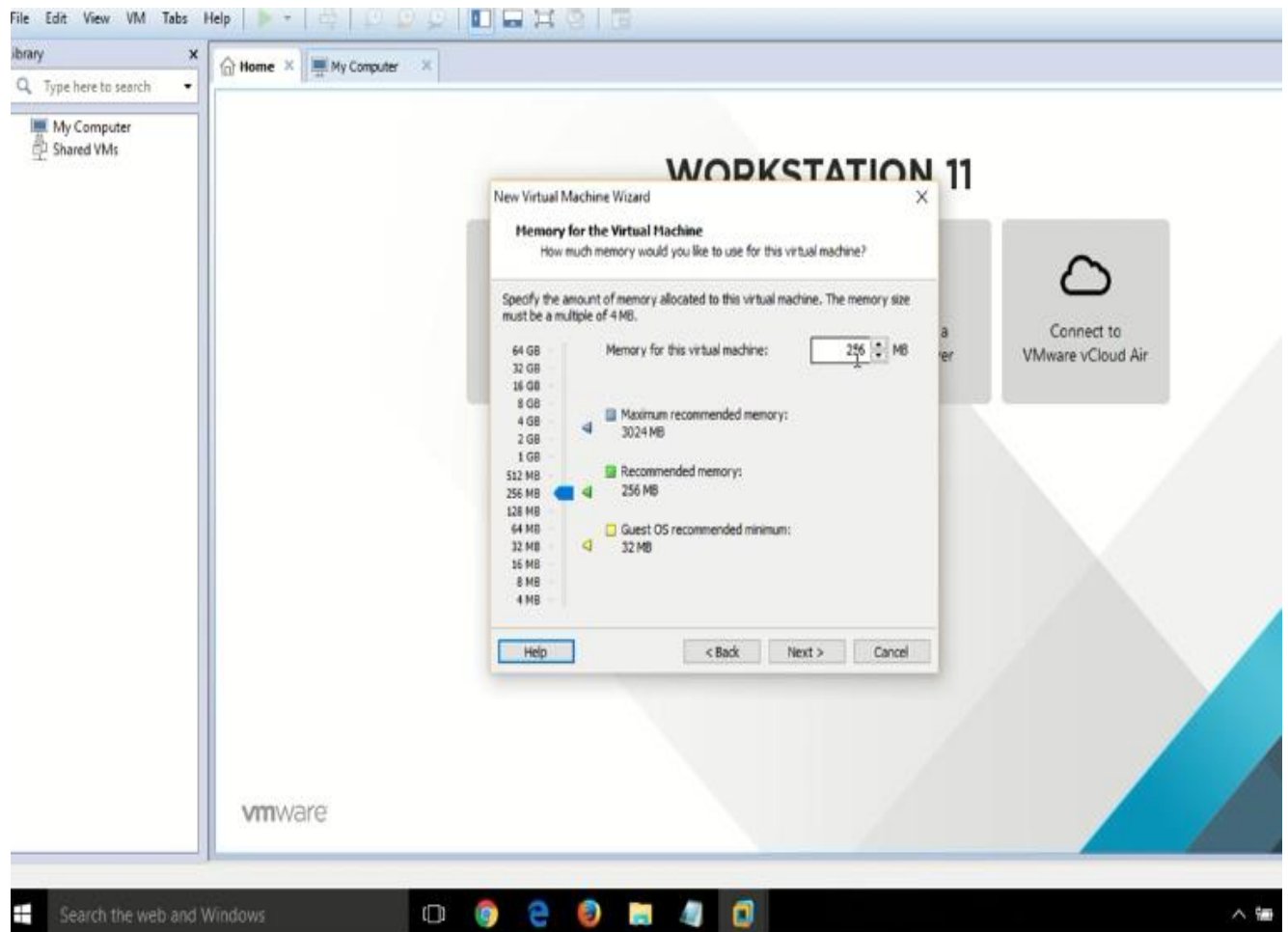
Figure 5.2 VM Memory space

This page is shown in VM memory space, how much memory you distribute for this Operating System, usually 256MB (Mega Byte) is enough for MiktoTik,
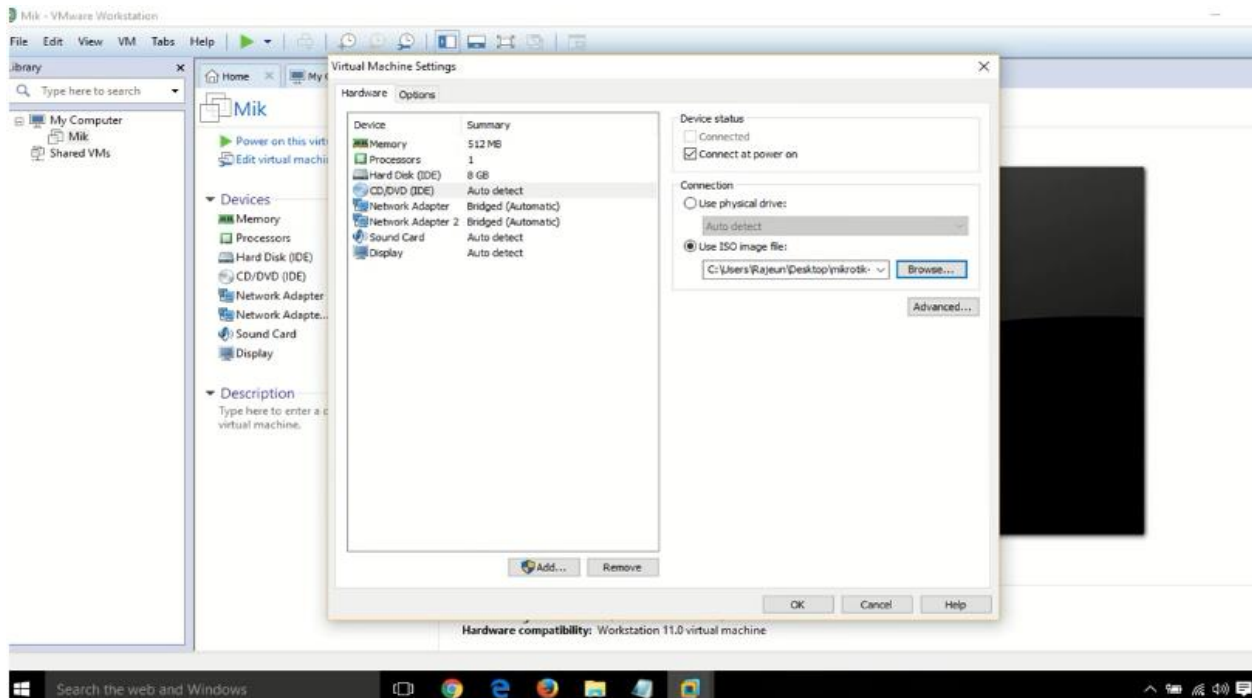
Figure 5.3 VM editing

This is a virtual Machin Settings. If need to change for OS memory space and more, browse MikroTik software then install to click "Power on this Virtual Machine" Finally we got the windows Welcome to MikroTik Router Software Installation, Then complete the installation.
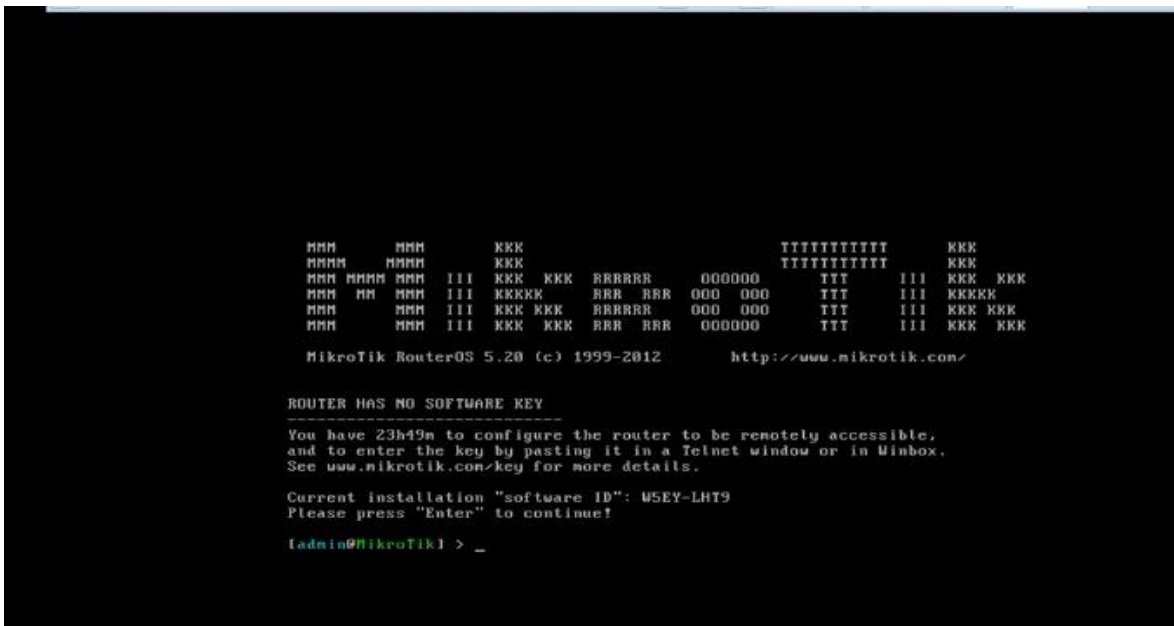

Figure 5.4 Installing MikroTik

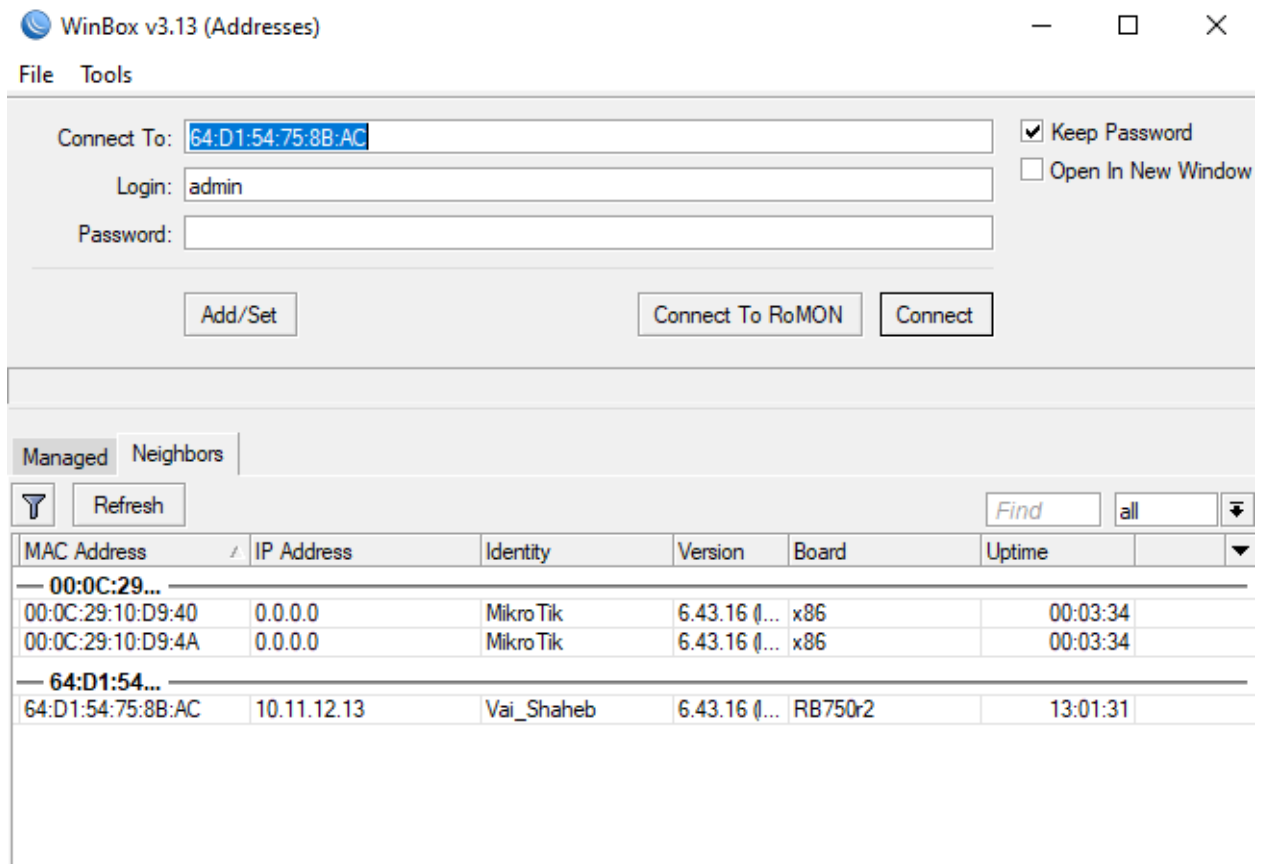## 5.2 MikroTic Router Configuration with Winbox

Figure 5.5 Login Page

Open the Winbox then refresh it to get MAC or IP Address, or directly put Address and Login name then click to "Connect" button, if its ok that's mean Logged In, show the another window here.
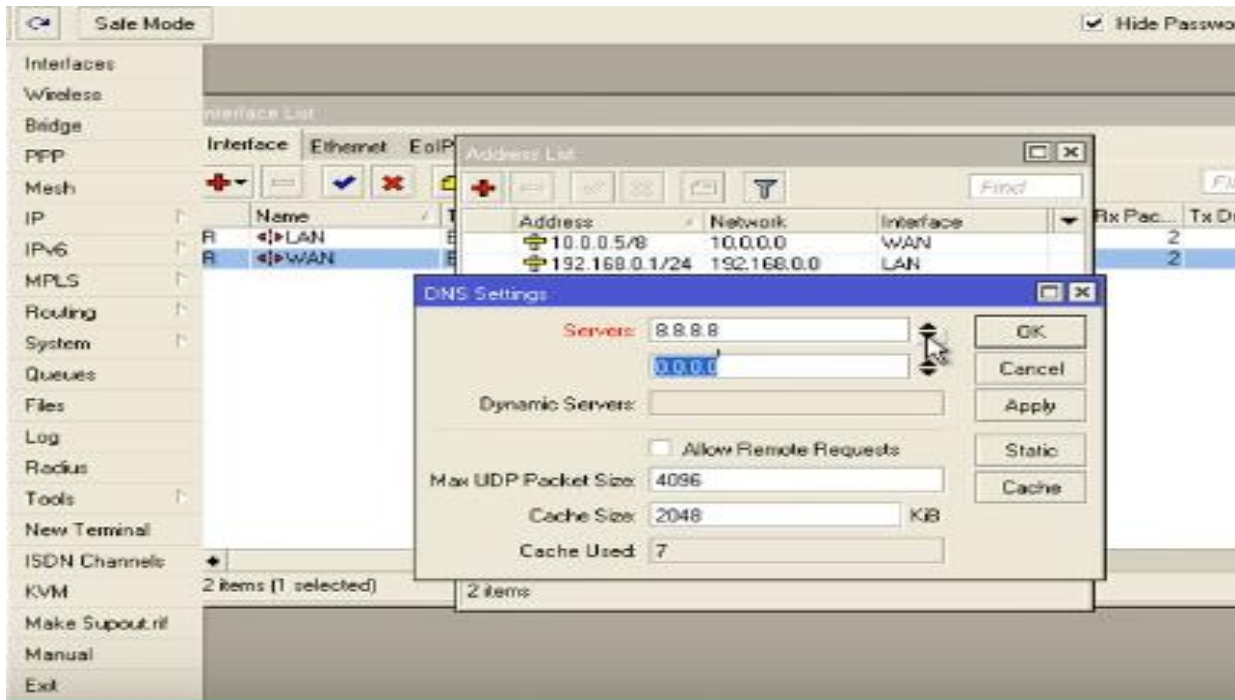
©Daffodil International University

Figure 5.6 Configuration IP, DNS

Go to interface change this connection name what you want, click IP button then configure provide IP address, subnet must, DNS, and Gateway, IP distribute system use in VLSM, Private IP use can be Local Area, when PC or other device want to connect this network router provide IP in this device, then it can be connected,
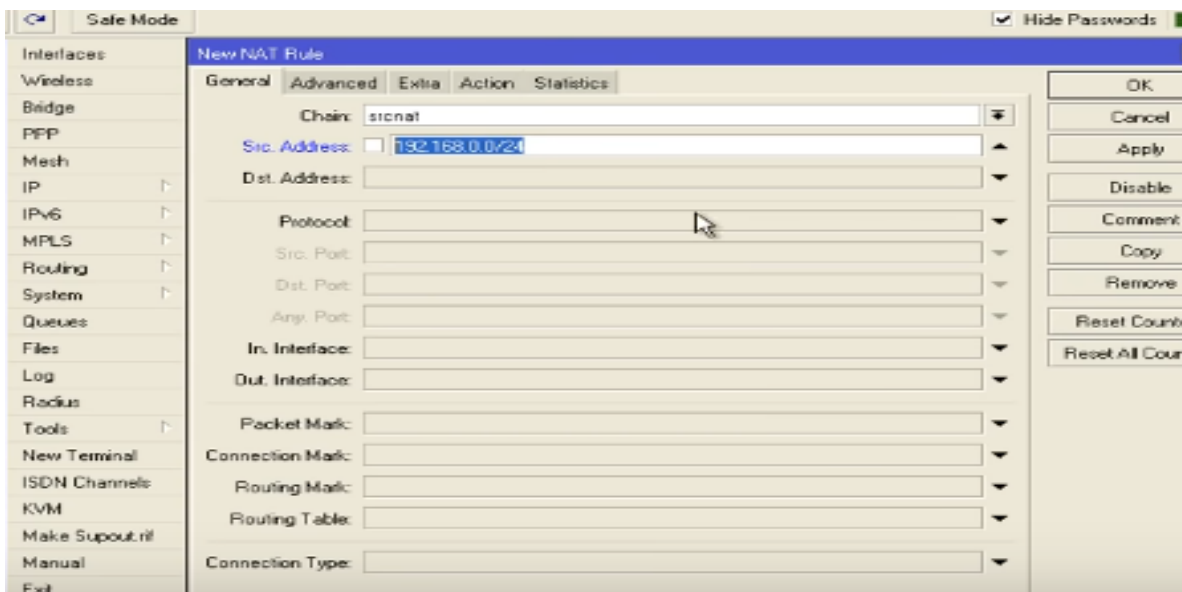

Figure 5.7 Routing

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CHAPTER 06

Conclusion and Future Carrier

6.1 Conclusion in this Report:

The errand of leading examination and investigation exercises on banking on the web activities, a much intricate and significant trait of IT segment, is somewhat gigantic, aggressive, handy and drudging, requesting of careful perception capacity, snappy learning capacities, improved diagnostic aptitudes and so on. Subsequently, I feel much charmed and calmed upon fruitful achievement and recording of my temporary position involvement on this very acclaimed ICT point, in an ingenious situation. I owe this accomplishment to the gift of all-powerful, the lessons of my regarded teachers from Daffodil International University, the direction of the much accommodating representatives of Sonali Bank IT division, the consolation of my family and companions, and in conclusion, my own earnest attempts and productive diligent work. I would be thankful if this temporary position report on Sonali Bank Network Operations Management System would be acknowledged in an exceedingly positive and inviting way thinking about my devotion and truthfulness.

On course of my temporary job, however I was granted an extraordinary learning knowledge, I was looked with a couple of impediments, which influenced my exercises somehow. The primary concern was time limitation. Another contributing component was the association set of accepted rules, which did not permit the representatives there to give me much top to bottom data, as they were under the confinement of keeping up association mystery and classification. It ought to be referenced that the down to earth condition of working inside any IT-based association necessitates that the representatives ought to not exclusively be commonplace, yet rather experienced with the devices utilized in online tasks inside the association. To satisfy this necessity, each representative engaged with the IT division trains himself widely. I was fortunate enough to get the major essential preparing on system the executives from them. This helped me a great deal to comprehend the systems administration exercises even in a brief timeframe time of my temporary position.

6.2 Scope for Future Career:

As an understudy of the much refreshing level of Computer Science and Engineering, the experience of my temporary position at Sonali Bank Limited, has been much enhancing and gainful, enabling me to enjoy basic and clever useful exercises to use my hypothetical learning, offered to me, by the incredibly splendid and much regarded employees of my adored instructive organization, Daffodil International University. Exceptionally, my fair director has guided me to beat any obstacles looked by me on course of my temporary position Thereby I feel apparently grateful to my regarded instructors for furnishing me with the best possible instructive foundation just as to Sonali Bank Limited for permitting me furnish with the down to earth field to sharpen my ICT abilities. I along these lines, pleasingly consider this temporary job understanding as an achievement venture on structure my vocation as a fruitful expert, whose establishment stone was laid with my instruction from my adored college.

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