

## References

- [8] Elmasri Navathe (2006), fundamentals of Data Base Systems-Page (39)
- [3] Ian Somerville (2006), Software Engineering – Seventh Edition- Page (357,358)
- [4] Ian Somerville (2006), Software Engineering – Seventh Edition- Page (209,210)
- [5] Ian Somerville (2006), Software Engineering– Seventh Edition- Page (305-408)
- [2] Poly.asu.edu./technology/dcst/Projects/pdf/XiaopingLi.pdf
- [6] <http://en.wikipedia.org/wiki/Software-Prototyping>
- [7] <http://www.cs.waikato.ac.nz/~marku/languages.html>
- [1] [www.wipo.int/pctdb/en/wo.jsp](http://www.wipo.int/pctdb/en/wo.jsp)



University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)

# Appendix A – Formatted documents uses with manual system

Information card

H 025297 ශ්‍රී ලංකා රජයේ මුද්‍රණ දෙපාර්තමේන්තුව

නම }  
Name }

ලිපිනය }  
Address }

විස්තර }  
Particulars }

  
තොරතුරු ප්‍රභවය }  
Source of }  
Information }

University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)





1 ව පැවතීම  
1 වී පடி වාර්තාව  
1 V Return

නම  
Name

දෙපාර්තමේන්තුවේ නම

අ. 515/96


**දේශීය ආදායම් - ශ්‍රී ලංකා ජනරජය**  
**உள்ளநாட்டு இறைவரி - இலங்கைக் குடியரசு**  
**INLAND REVENUE - REPUBLIC OF SRI LANKA**

සමුදාය  
අනුමැතිය  
Reference No.

මෙම දෙපාර්තමේන්තුවේ මඬුම ආදායම් බදු ලිපියොනුවක් තිබේ නම්, මෙම මෙම ආකෘති පත්‍රයේ පසු පිටු සම්පූර්ණ කිරීමට අවශ්‍ය නැත. පහත අංශවල විස්තර පමණක් සපයා මෙම ආකෘති පත්‍රය ආපසු එවන්න. එම අපහසුතාවයන් වී නම් කනටාවලිවේ.

இத்திணைக்களத்தில் உங்களுக்கென வருமானவரிக் கோவைவொன்றும் மொத்த விற்பனை வரிக் கோவைவொன்றும் மிகுப்படி வத்தில் ஏனைய பக்கங்களை நிரப்ப வேண்டியதில்லை. டீன்களும் விரங்களை மட்டும் பூர்த்தி செய்து இப்படிவத்தை திரும்பி அனுப்பவும். வசதியீனத்துக்கு வருந்துகின்றோம்.

If you have an Income Tax file in this Department, you need not complete the rest of this form. Please furnish only the following particulars and return the form. Any inconvenience caused is regretted.

දෙපාර්තමේන්තුවේ අංකය : අනුමැතිය අංකය : Reference No. :	වයස / වයස (Years)	සමුදාය / සමුදාය (Spouse's)
 අනුමැතිය අංකය : Personal Identity Card No. :	University of Moratuwa, Sri Lanka. Electronic Theses & Dissertations www.lib.mrt.ac.lk	
මෙම බදු ලිපියොනු අංකය දැක්වීම : வருமான வரிக் கோவை இல. ஏதேனும் மிகுப்பிள்ளை Income Tax File No. if any :		
ඩ. ඩ. අංකය දැක්වීම : ඩ. ඩ. අංකය : DT No. if any :		
සමුදායකයාගේ ලියාපදිංචි අංකය : தொழில் தருநர் பதிவு இல. : Employer's Registration No. :		

**2006 අංක 10 දරන දේශීය ආදායම් පනතේ 106 (7) වගන්තිය යටතේ කරන දැන්වීමයි**  
**2006 ஆம் ஆண்டின் 10 ஆம் இலக்க உள்ளநாட்டு இறைவரிச் சட்டத்தின் 106 (7) பிரிவின் கீழான அறிவித்தல்**  
**Notice under section 106 (7) of the Inland Revenue Act, No. 10 of 2006**

ආදායම් බදු ලිපියොනුවක් නොමැති නම්, 20... 04. 01 සිට 20... 03. 31 දින දක්වා පැවැත්වීමේදී සඳහා අදාළ වියහැකි සපයමින් මෙම පත්‍රය සම්පූර්ණ කර මෙහි සහතික දැක්වෙන දිනයේ සිට සති දෙකක් දැනුණ දේපලක් කරන ලෙස එවීමට මෙයින් දැනුම් දෙනු ලැබේ. මීට අනුකූලව නොකළහොත් රු. 50,000 ක් නොදුක්වන දඩයකට හෝ නීති මගින් කටයුතු කරනු ලැබීමට හෝ එම යටත් වන බව සිහිපත් කළ යුතුය.

ඔබට ආදායම් බදු ලිපියොනුවක් නොමැති නම්, 20... 04. 01 සිට 20... 03. 31 දක්වා කාලයේදී සඳහා අදාළ වියහැකි සපයමින් මෙම පත්‍රය සම්පූර්ණ කර මෙහි සහතික දැක්වෙන දිනයේ සිට සති දෙකක් දැනුණ දේපලක් කරන ලෙස එවීමට මෙයින් දැනුම් දෙනු ලැබේ. මීට අනුකූලව නොකළහොත් රු. 50,000 ක් නොදුක්වන දඩයකට හෝ නීති මගින් කටයුතු කරනු ලැබීමට හෝ එම යටත් වන බව සිහිපත් කළ යුතුය.

If you do not have an Income Tax file you are hereby required to complete the form giving particulars asked for the period 01. 04. 20 ..... 03. 20 ..... within 2 weeks of the date given below. Please note that non-compliance will involve the imposition of a penalty not exceeding Rs. 50,000 or taking of court action.

දේශීය ආදායම් /  
 Deputy Commissioner  
 දේශීය කාර්යාලය / අංශය  
 Regional Office / Unit

දේශීය ආදායම් දෙපාර්තමේන්තුව,  
 අංක 515, කොළඹ.

දිනය / Date

Department of Inland Revenue,  
 Box 515, Colombo.

ශ්‍රී ලංකා ප්‍රජාතාන්ත්‍රික සමාජවාදී ජනරජයේ  
දේශීය ආදායම් බෙදාහැරීමේ දෙපාර්තමේන්තුව  
කු.වෙ.අංකය 515,  
සේනාපතිගලුම් මාවතේ පිහිටි,  
කොළඹ 2, ශ්‍රී ලංකාව.

உள்ளநாட்டு இறைவரித் திணைக்களம்  
உள்ளநாட்டு இறைவரித் திணைக்களம்,  
தாய்நெட்டி இ.ம. 515  
சேர்ச்சிநம்பலம் ச.கா.ப.அர் மாவத்தாடி  
கொழும்பு 2, இலங்கை.

DEPARTMENT OF INLAND REVENUE  
Inland revenue Building  
P.O.Box No. 515  
Sir Chittampalam A. Gardiner Mawatha,  
Colombo 2, Sri Lanka.

430816

දුරකථන  
දුරකථන අංකය  
Telephone } 421241

දුරකථන  
දුරකථන අංකය  
Telegrams }  
දේශීය  
දුරකථන  
Revenue

මගේ අංකය  
எனது இல  
My No: }

දිනය  
திகதி  
Date }

Sir/Madam,

No. ....

Please call over at this office for an interview on .....2007 at  
.....a.m./p.m. for the purpose of being examined in connection with the  
income tax liability of you.

Please have your National Identity Card with you.

Please also note to produce the following documents at this interview.

1. Photocopy of certificate of Business Registration.
2. Trade profit and loss accounts and balance sheets, for the Y/A 2006/2007
3. Bank statements and Pass Books (for the period 01.04.2006 to 31.03.2007)
4. Copies of Deeds pertaining to immovable properties purchased.
5. Details of Motor Vehicles you own.
6. Lease agreement
7. Electricity Bills (for the period 01.04.2006 to 31.03.2007)
8. Receipt and payment account (for the period 01.04.2006 to 31.03.2007).
9. ....
10. ....

Please be kind enough to complete and bring the form IV attach herewith along with other  
documents as mentioned above.

Yours faithfully,

For Assessor/Assessor  
Inland Revenue (Special Information Branch)  
Commissioner General of Inland Revenue  
Telephone:

දෙවන ආදායම් දෙපාර්තමේන්තුව  
 දෙවන තනතුරු කොටසේ ලේ,   
 ආ.පො.කොටස 515,   
 පලමු මහලයේ සිටින ලදී,   
 කොළඹ 2, ශ්‍රී ලංකාව.

உள்ளகம் (இலாபம்) தீர்மானம்  
 உள்நாட்டு வரித்துறை  
 கட்டிடம், பி.ஓ.பெண் 515,  
 முதல் மாடிகளில் உள்ளது,  
 கொழும்பு 2, சீலங்கா.

DEPARTMENT OF INLAND REVENUE  
 Inland revenue Building  
 P.O.Box No. 515,  
 Sir Chittampalam A. Gardiner Mawatha,  
 Colombo 2, Sri Lanka

430816

දුරකථන  
 අංකය  
 Telephone } 421241

දුරකථන  
 අංකය }  
 Telegrams }  
 Revenue

මගේ අංකය  
 என் எண்  
 My No: }

දිනය  
 යුග  
 Date }

.....  
 .....  
 .....  
 .....

Sir/Madam,

Income Tax Liability V/A.....

With reference to your return IV letter dated.....on Income Tax.

You are kindly requested to furnish the following documents on or before.....to determine your Tax Liability under Section 98(3) of the Inland Revenue Act No. 38 of 2000 and Section 106 (5) of the Inland Revenue Act o.10 of 2000.

1. Monthly bank statement.
2. Receipt and payment accounts.
3. Assets and liabilities statement as at 31/03.....Sri Lanka.
4. Documentary Evidence for Income Statements (Accounts/Valid documents & Employment Income).
5. Monthly residential telephone bill, electricity bill & credit card bill for the above year of assessment.
6. Details and documentary evidence of fixed deposits & savings accounts.
- 7.
- 8.
- 9.

If you fail to submit your Income Tax Return (Form IV) to the above date according to the information received a permanent income tax file will be opened considering that you are liable to tax.

Your file number will be informed to you in due course.

Assessor  
 Information Branch II  
 For Commissioner General of Inland Revenue  
 Tel: 2478291

## Appendix B – Feasibility study

### 4.0 Feasibility study

It is better to understand the existing system and the proposed system which relates to information processing system, before starting the study of feasibility.

#### Required Resources for Development & Implementation of the Proposed System

##### Hardware

For the development purposes the developer has a personnel computer with necessary software and Internet facility.

For the Implementation of the proposed system, the existing hardware and software at The Department of Inland Revenue can be used and the required new hardware can be purchased.

The **Hardware requirements** for the proposed information management system:

Hardware	Cost
1. Server - 01	Rs.300,000/=
2. PCs - 300 (existing)	
3. Local Area Network - existing	
4. Printers - existing	
5. Total	Rs. 300,000/=

##### Software

The **Software Requirements** for the proposed information management system:

Software	
1. Database - MySQL	Freely available under GPL license
2. Tool - PHP & Eclipse	Available Under PHP license and Eclipse Public license1.0
3. Server - Apache HTTP	Available Under the Apache license 2.0
4. Platform – Windows 2003 ( for Sever PC)/ Widows XP (for clients)	

Open source software is used for the development as well as the implementation. So, the software cost is zero for the proposed system.

## **Human Resources**

### **Development stage**

Development will be done at no cost, because it will be a required project of the MSC-IT which is to be done by the developer.

### **Training of users**

System users can be trained within a period of one week. The training must be done separately by the levels identified and the branch wise. One person must be trained about the functionalities of the system (branch wise) to attend any problem occurred. Training can be done at the place of training branch at the Department. So, therefore no cost for the place. Training materials will be prepared by the developer at no cost.

Most of the users who are going to interact with this system have the basic computer knowledge, so the training can be done easily.



University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
www.lib.mrt.ac.lk

### **4.1 Economic feasibility**

As the discussion with the management of the Inland revenue Department, they agreed to provide cost for the hardware requirements.

Management agreed to train their users without any interruption to their daily operations as the normal training sessions on taxation

### **4.2 Technical feasibility**

#### **Technology**

As we are using open source technology, we can get the new upgrades, necessary supports freely from the web.

Operating System	Windows 2003 , Windows XP
Development Environment	PHP, MySQL
Designing Tools	PHP, UML
Browser	Fire fox / Internet explore

### Technical know-how

The system developer has some theoretical knowledge about MySQL and PHP and little knowledge about designing GUI s. But the lack of practical experience on those and the lack of knowledge about technologies used here for development, the developer has to face to a challenge to fulfill the project schedule and the goal. However the developer is earning practical experiences and the lack of knowledge about technologies from colleagues. Anyway the developer is familiar with Software project management methods to manage the problems occurs.

### Project risk

- Full delivery of the user requirements may not be achieved the dead line due to lack of experience on the technologies.
- The time period may be extended due to the environment of the economical, security and political circumstances in the country.
- Developer may have to face any unexpected events in the personal life.

### Product risk

- Risk of successfully establishing database connection with the current database. In such situation, we have to make a good relationship with the client and the other parties.



- The existing system can be changed by the Department, not knowing the developer.
- The size of the system can be over estimated or under estimated by the users.

### **4.3 Organizational feasibility**

There will not be arisen any risks on,

1. Employments / jobs
2. Effectiveness
3. Security of the system

And it will be beneficial to take action on all information received by the organization without data loosing and misusing.

### **4.4 Legal feasibility**

#### **License**

Open source software is used for the development as well as the implementation.

#### **Agreement**

An agreement will be as per the mutual understanding between developer and The Department of Inland Revenue.



University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
www.lib.mrt.ac.lk

#### **Confidential documents**

The developer will be fully responsible for the documents took over from The Department of Inland Revenue until the end of the project and are bound to hand over all the confidential documents at the movement of sign-off of the project.

### **4.5 Cost benefit analysis**

#### **• Time**

Since there are lot of manual processes are involved with existing system, considerable amount of time is being wasted.

Updating the data and communication of the same is done through the proposed system; the data delivery time can be reduced two weeks up to 05 minutes.

- **Data quality**

In the current system, most of the time, Information is can be lost. And the information can be lead to corruptions.

With the proposed system, since there is “Information bank” will have same information at the same time and the happening of misuse could be minimized, because of the plan to make the database with high security.



University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)

## Appendix C – Use case descriptions of existing system

### Use Case Descriptions for internal information handling process

1. Use Case - **receive information**
- Actors - Deputy Commissioner (tax branches), Senior Tax Officer  
(Administration), Assessors (tax branches)
- Pre Condition - information branch or any tax branch must issued information cards or information branch distributed temporarily opened files
- Basic flow
1. Deputy Commissioner (tax branch) receives information cards/temporarily opened files
  2. Deputy Commissioner sign on them
  3. Deputy Commissioner send them to Senior Tax Officer (administration)
  4. Senior Tax Officer (administration) record them in information register
  5. Senior Tax Officer (administration) checks the file allocation list
  6. Senior Tax Officer (administration) record them as Assessor wise
- Post Condition - distribute information cards & temporarily opened files among Assessors
2. Use Case - **attend on information cards**
- Actors - Assessor (tax branches), Tax Officers (tax branches)
- Pre Condition - Senior Tax Officer (administration) must distribute information cards among Assessors
- Basic flow
1. Assessors receive information cards
  2. Assessors search whether it is related to an available file or not



University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations



3. Assessors call details/call for interviews
4. Assessors collect required documents
5. Assessors identify the tax liability
6. if file available, order to prepare additional assessment
7. if there is not available file, order to prepare file opening form
8. Tax Officers prepare relevant forms & submit them to sign
9. Assessors sign & send them to computer development unit

Post Condition

- data preparation unit must issue assessments

### 3. Use Case

- **Open permanent files**

Actors

- Assessor (tax branch), Tax Officers (tax branch)

Pre Condition

- Senior Tax Officer (administration) must distribute temporarily opened files

Basic flow



- Assessors receive temporarily opened files
- Assessors record them in branch file list
- Assessors order to prepare documents to make permanent files
- Tax Officers prepare documents & submit them
- Assessors approve them & issue permanent file numbers
- Assessors record it in branch file list

Post Condition

- administrate new files

### 4. Use Case

- **find new information**

Actors

- Assessor (tax branches), Tax Officers (tax branches)

Pre Condition

- Annual returns and audited accounts for the current periods must be available as allocation

Basic flow

1. Assessor (tax branches) do rapid audits on accounts details
2. Assessor (tax branches) identify new information
3. Assessor (tax branches) order to write information Cards
4. Tax Officers prepare information cards
5. Tax officers check data base to find file availability & branches
6. If file available, record the branch on information card
7. Tax Officers submit them to Assessors to get Signature
8. Assessor sign & order to distribute them
9. Tax Officers record them in registers Exceptions
10. else, record information branch on information card

Post Condition

-distribute information cards to relevant branches



University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)

5. Use Case

- **generate reports**

Actors

Deputy Commissioner (tax branch), Deputy Commissioner (information), Assessors (tax branches)

Pre Condition

- Assessor must check & attend on information he received

Basic flow

1. Assessors submit reports about the output of Information
2. Collect reports from assessors
3. Deputy Commissioner (tax branch) prepare branch report
4. Deputy Commissioner (tax branch) send report to information branch.

Post Condition

- send reports to information branch

## Use Case Descriptions for external information handling process

1. Use Case - **call information**
- Actors - Deputy Commissioner (information), external information sources
- Pre Condition - external information sources must have been identified by the DC
- Basic flow
1. Deputy Commissioner (information) checks the external information source list
  2. Deputy Commissioner (information) sends information calling letters to external information sources
  3. External information sources receive information calling letters & submit replies to the Deputy Commissioner (information)
- Post Condition - Deputy Commissioner (information) collect replies for calling letters



University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)

2. Use Case - **Collect information**
- Actor - Deputy Commissioner (information)
- Pre Condition - information calling letters must have been issued by the DC
- Basic flow
1. Deputy Commissioner (information) receive replies for calling letters or receive any information in any other way
  2. Deputy Commissioner (information) gets printed documents from received soft copies
  3. Record all received information in a register
- Post Condition

3. Use Case
- Actors
- Pre Condition
- Basic flow
- Post Condition
- **distribute information**
  - Deputy Commissioner (information), Assessors (information)
  - all received information must have been recorded in the register
  - 1. Deputy Commissioner (information) assign numbers on all received documents
  - 2. Deputy Commissioner (information) selects Assessors
  - 3. Deputy Commissioner (information) distributes Information to selected Assessors
  - 4. Assessors (information) receive distributed information
  - attend on information

4. Use Case
- Actors
- Pre Condition
- Basic flow
- **attend on information**
  - Assessors (information), Tax Officers (information), current database
  - information must be distributed by the DC branch
  - 1. Assessors record received information in their register
  - 2. Assessors log in to IRD system
  - 3. Assessors search file availability
  - 4. current data base retrieve records
  - 5. IRD system retrieves records & view results
  - 6. Assessors see the file availability & the relevant branch
  - 7. If it is related to an available file, Assessors order to write information cards to tax officers else, Assessors keep the information in hand
  - 8. Tax Officers write information cards & submit for Assessors' signature



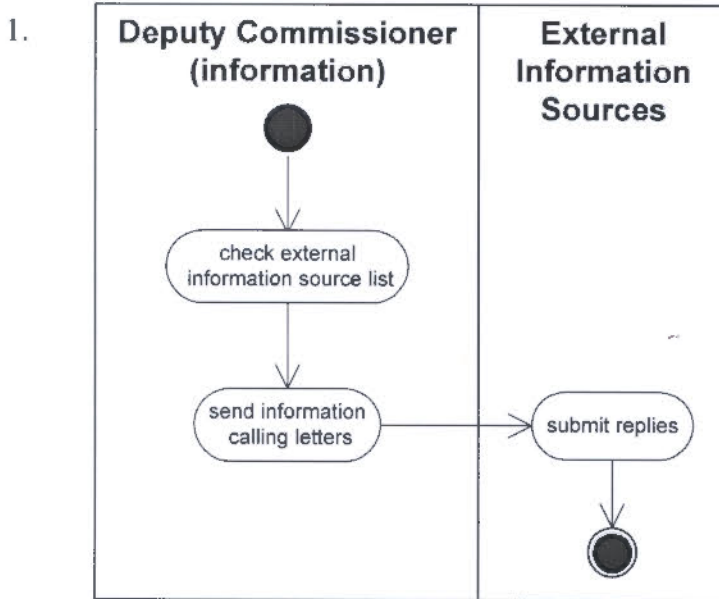
	9. Sign & send it to relevant branch
Post Condition	- open new files/send information cards to relevant
5. Use Case	- <b>open new files temporarily</b>
Actors	- Assessors (infor.br.), Tax Officers (infor.br.), External information sources
Pre Condition	- Keep other documents in information branch
Basic flow	1. Assessors (information) check information 2. Assessors send 1 V forms to external sources 3. If Assessors receive replies, Assessors call extra details/call for interviews
Exception	<b>else</b> , Assessors send reminders 4. Assessors identify tax liability 5. If identified any tax liability, Assessor orders to open temporary files
Exception	<b>else</b> , put away documents 6. Tax Officer prepare temporary files & submit to Assessors for signature 7. Assessors checks & sign them
Post Condition	- send opened new files to relevant branch/ Assessors keep put away documents in a file





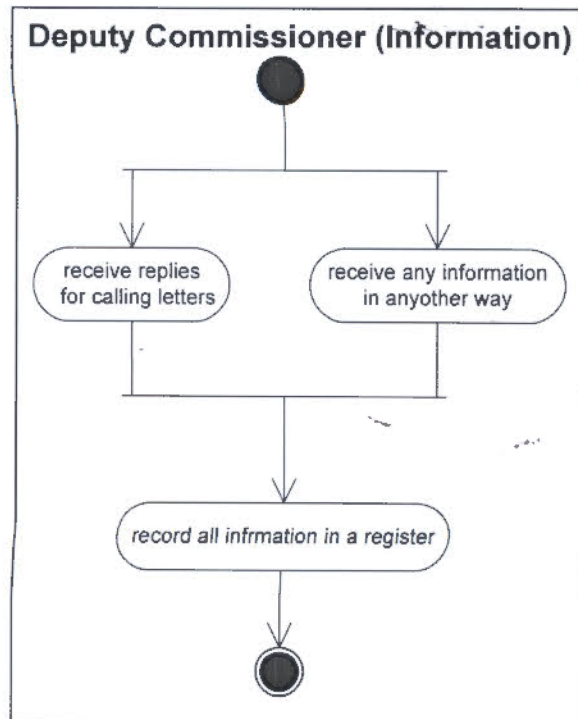
## Appendix D – Activity diagrams of existing system

### Activity diagrams for existing External Tax-Information handling process

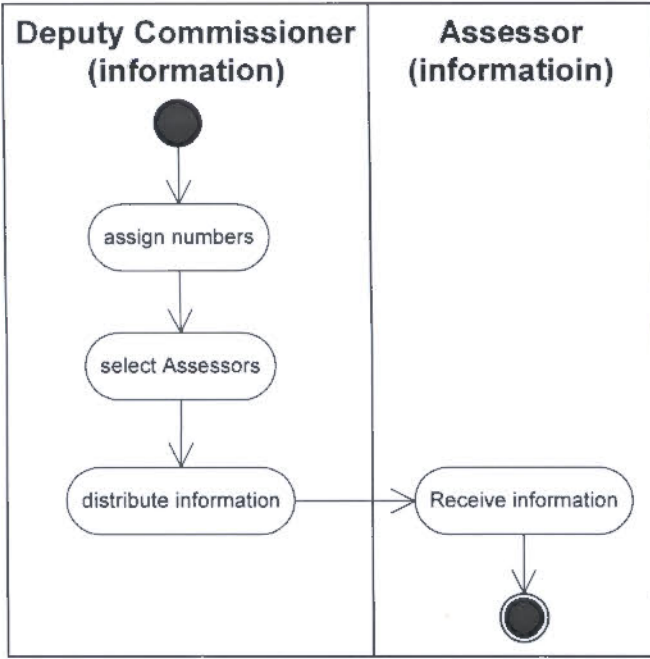


University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)

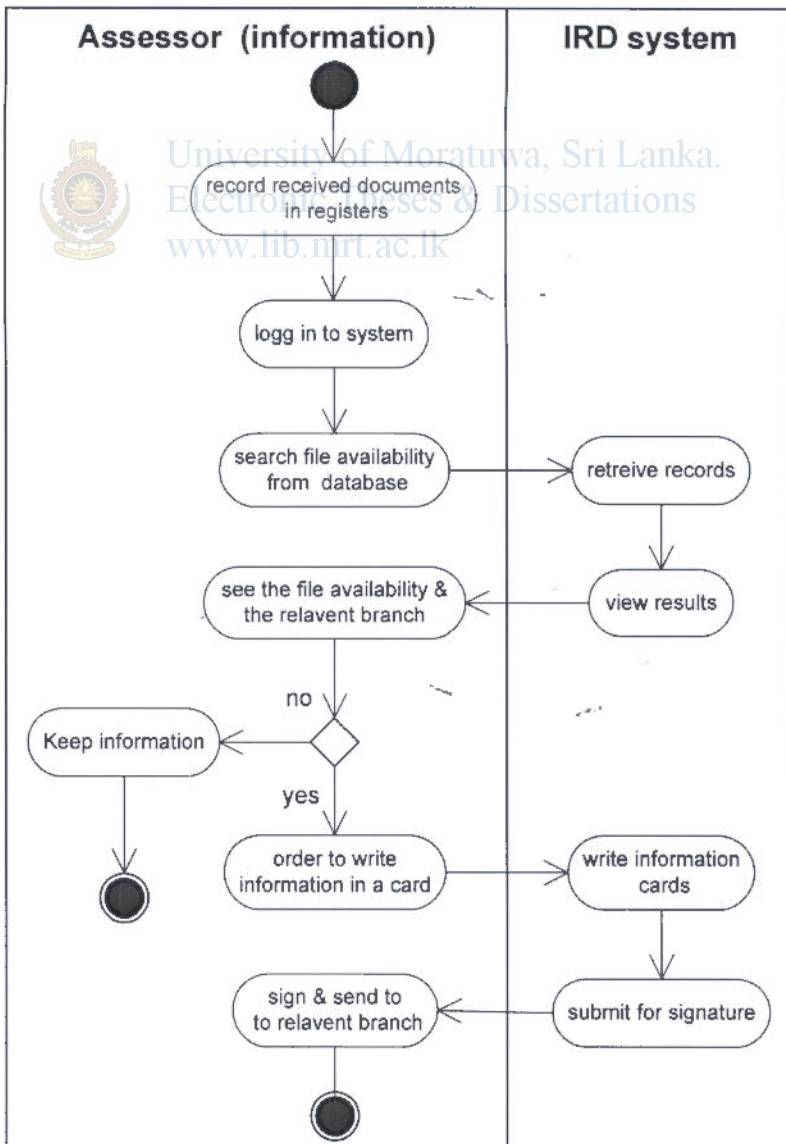
2.



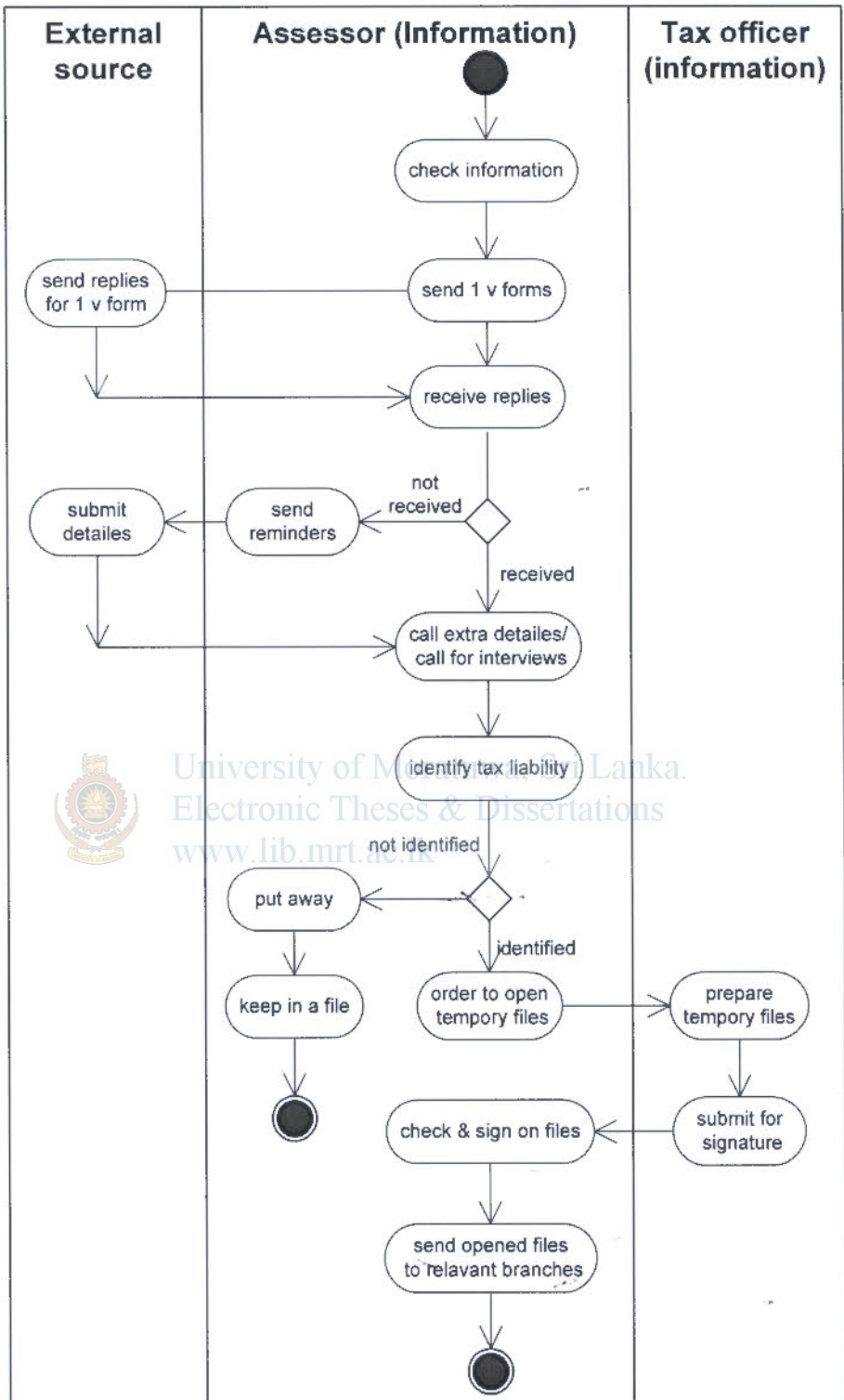
3.



4.

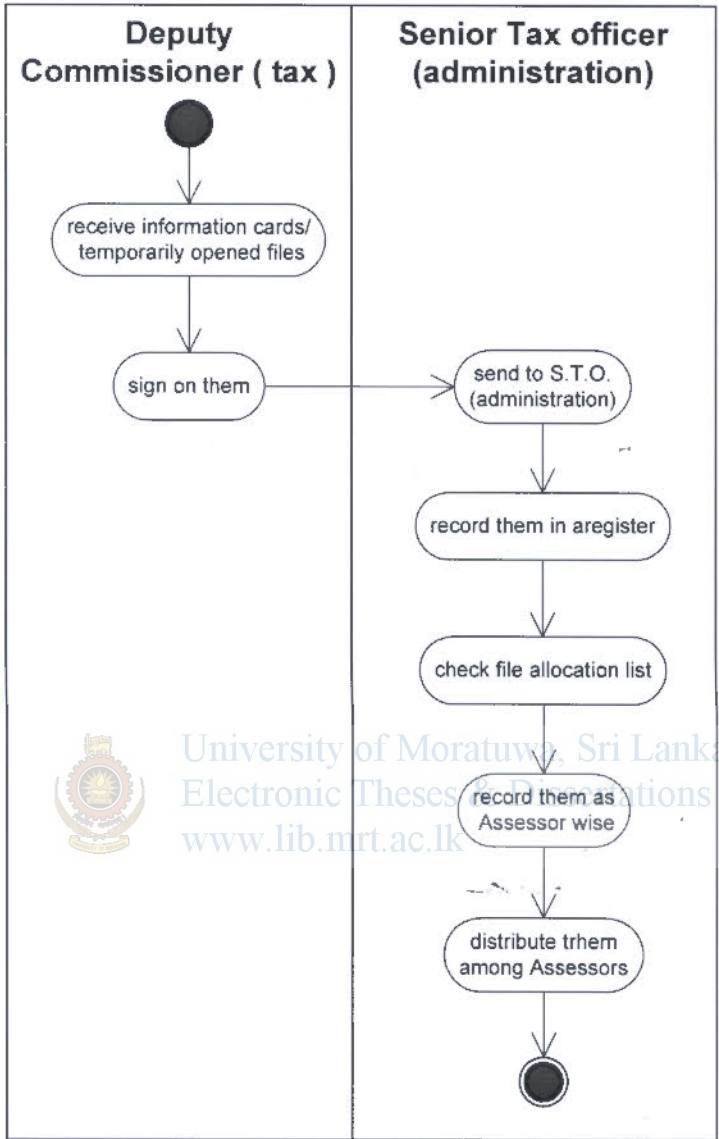


5.

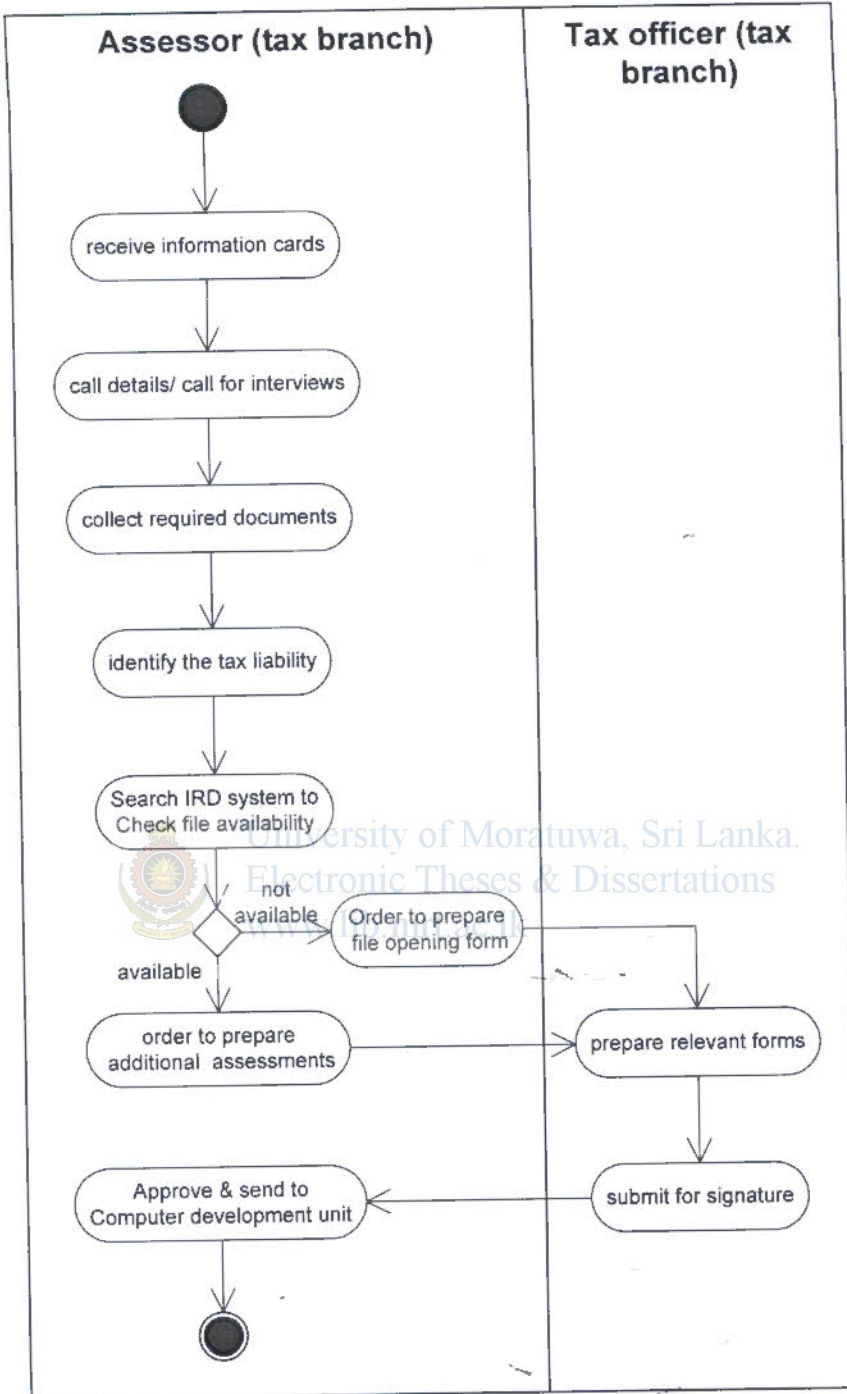


Activity diagrams for existing Internal Tax-Information handling process

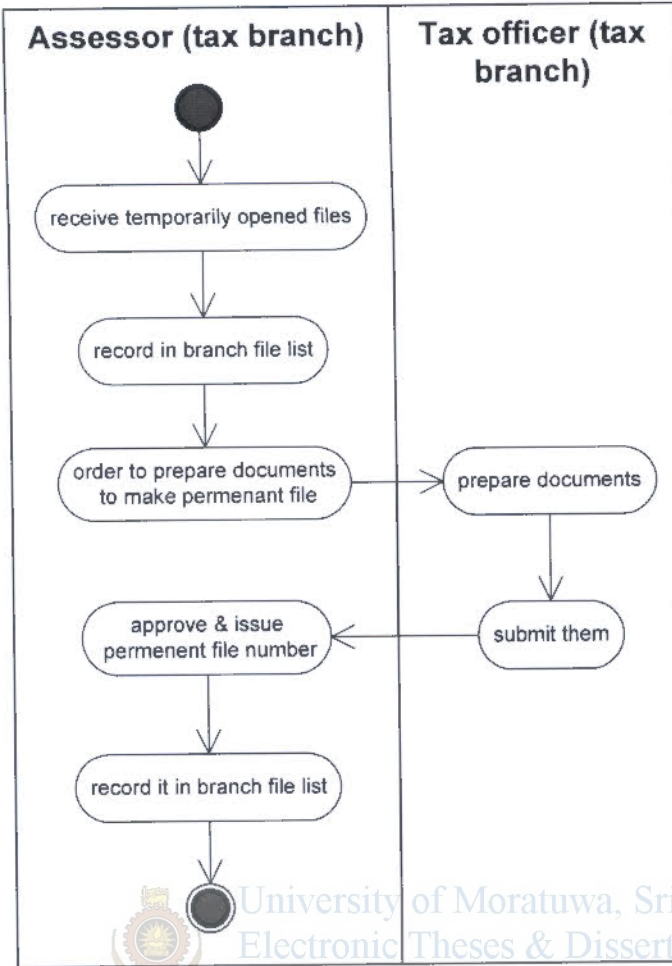
1.



2.

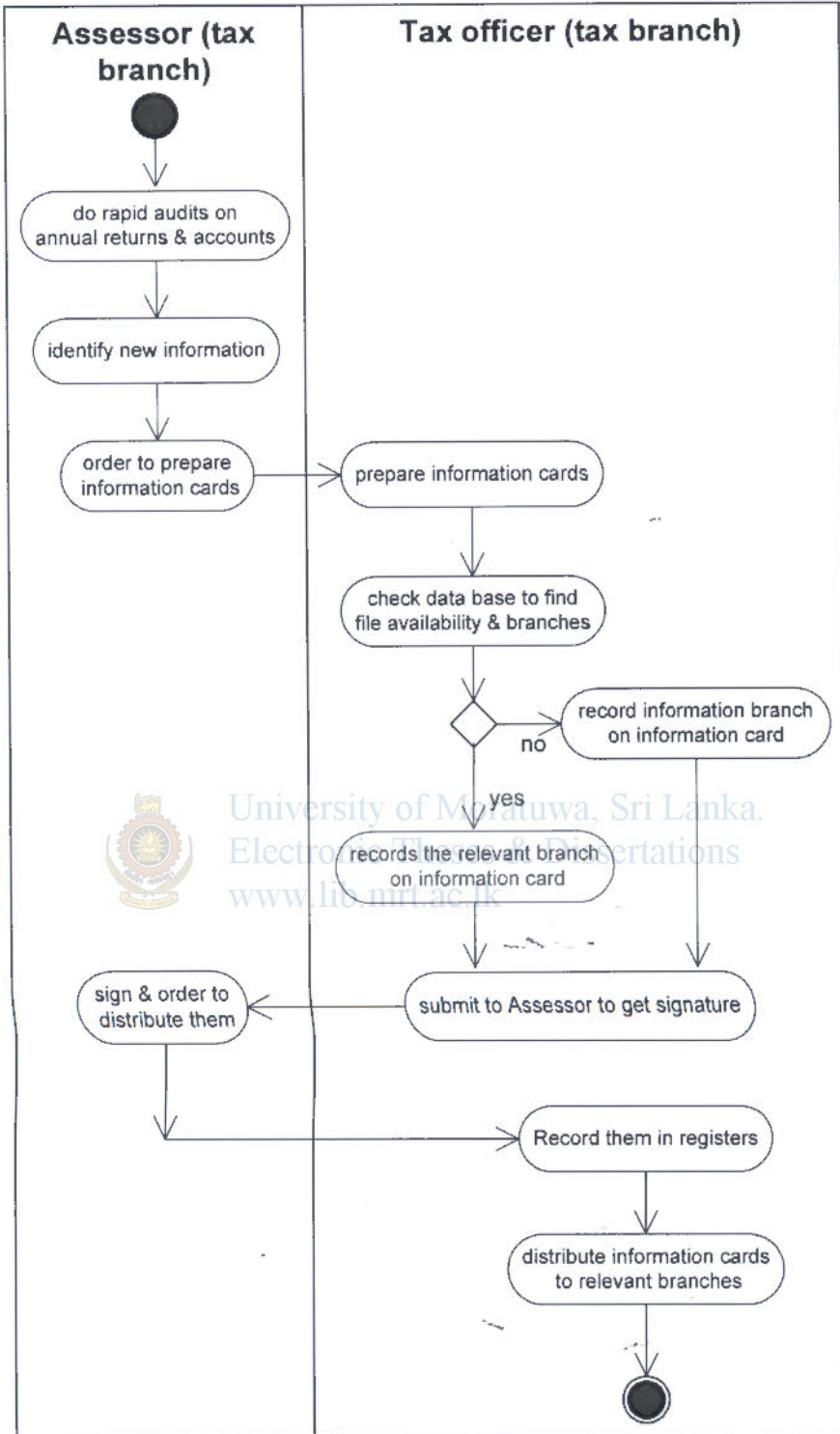


3.

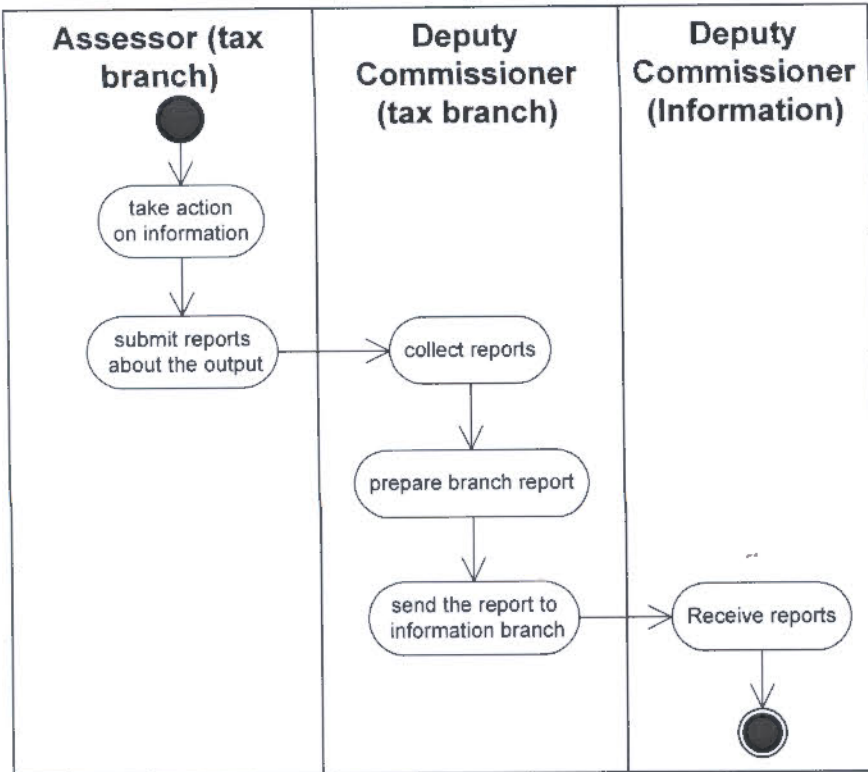


University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)

4.



5.



University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)



## Appendix E – Use case descriptions of proposed system

Name	1.   Log in to system
Actor	User
Pre conditions	System should be accessible.
Flow	<ol style="list-style-type: none"> <li>1. System display log in page.</li> <li>2. User enter user name and password.</li> <li>3. System check the validity of the user name &amp; password.</li> <li>4. If it is valid, system validate user log in &amp; display the home page.</li> </ol>
Exceptions	log in failed, the system identify and show log in page again.
Post conditions	User view main page.

Name	2.1   Create users
Actor	System Administrator
Pre conditions	System Administrator have been advised by the Management of the department to create new user.
Flow	<ol style="list-style-type: none"> <li>1. System Administrator request create user form.</li> <li>2. System display the form.</li> <li>3. Sy. Adm. enter new user details and save them.</li> <li>4. System check the user is exists.</li> </ol>
Exceptions	If exists, system identify and show user exists.
Post conditions	If not exists, system store details as a new user.

Name	2.2   Delete users
Actor	System Administrator
Pre conditions	System Administrator have been advised by the Management to delete existing user
Flow	<ol style="list-style-type: none"> <li>1. System Administrator request delete user form.</li> <li>2. System display the form.</li> <li>3. Sy. Adm. select user id from menu selection..</li> <li>4. System check the user is exists and display user details.</li> <li>5. Sy. Admm enter deletion date &amp; confirm deletion.</li> <li>6. Sy. Admin save data.</li> </ol>
Post conditions	System erase the user details.

Name	2.3	Edit users
Actor	Deputy Commissioner	
Pre conditions	Deputy Commissioner have been advised by the Management to edit user or allocated field details	
Flow	<ol style="list-style-type: none"> <li>1. Deputy Commissioner request edit user form.</li> <li>2. System display the form.</li> <li>3. DC. select user id from menu selection..</li> <li>4. DC edit user details (branch/ file allocation)</li> <li>5. DC save the changes.</li> </ol>	
Post conditions	System save data as changes.	

Name	3.1	Enter external information
Actors	Data entry operator	
Pre conditions	Officer In charge (Information) collects external information, put serial numbers with the received date and pass to Data entry operators.	
Flow	<ol style="list-style-type: none"> <li>1. Data entry operator request the data entry form.</li> <li>2. System display data entry form.</li> <li>3. Data entry operator enter information (received date to the information branch, sender, name &amp; address regarding information and the information)</li> <li>4. Data entry operator save data.</li> </ol>	
Post conditions	System store data.	

Name	3.2	Enter internal information
Actors	Assessor (Tax )	
Pre conditions	Assessors (Tax branch) identify internal information through manual tax file auditing process.	
Flow	<ol style="list-style-type: none"> <li>1. Assessor request internal information entry form.</li> <li>2. System display data entry form.</li> <li>3. Assessor enter information with the type of information.</li> <li>4. Assessor save data.</li> <li>5. System assign a serial number for information.</li> </ol>	
Post conditions	System store information	

Name	5	Upload the action taken for received information, on registered tax files.
Actor	Assessor (Tax)	
Pre conditions	Assessors receive new information related to registered tax files.	
Flow	<ol style="list-style-type: none"> <li>1. Assessor (Tax) ) identify tax liability on received Information.</li> <li>2. If identified tax liability, issue additional tax assessment manually.</li> <li>3. Assessor (Tax)) request the action taken upload form from system.</li> <li>4. System display action taken upload form.</li> <li>5. Assessor (Tax) enter details of action taken for received information.</li> <li>6. Assessor save data.</li> </ol>	
Exception	If not identified any tax liability, Assessor (Tax) enter identified as invaluable for additional tax liability.	
Post conditions	IPS-IRD system store action uploaded.	



University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)

Name	6	Call explanations
Actor	IPS-IRD system, Assessor (Information), Assessor (Tax branch)	
Pre conditions	IPS-IRD system must keep updated action taken table with the record of distributed information.	
Flow	<ol style="list-style-type: none"> <li>1. IPS-IRD system search Assessors (Tax) and Assessors (Information) who have not uploaded action taken for distributed information, to the action taken table.</li> <li>2. IPS-IRD system mark identified Assessors to call explanation called with the date and save them.</li> <li>3. System store data.</li> <li>4. System pass message to-Assessors calling explanations on non updating of actions taken.</li> <li>5. Assessors attend on message, taking action for information.</li> </ol>	
Post conditions	Assessor upload action taken.	

Name	7   View reports
Actors	Deputy Commissioner (tax / Information) , Assessor (Tax / Information)
Pre conditions	
Flow	<ol style="list-style-type: none"> <li>1. User request to see report.</li> <li>2. System display report page as user role.</li> <li>3. User request report generating form.</li> <li>4. System display requested form.</li> <li>5. user input report type &amp; period and save data.</li> <li>6. System retrieve requested details and show.</li> </ol>
Post conditions	User view report & print report if he wanted.

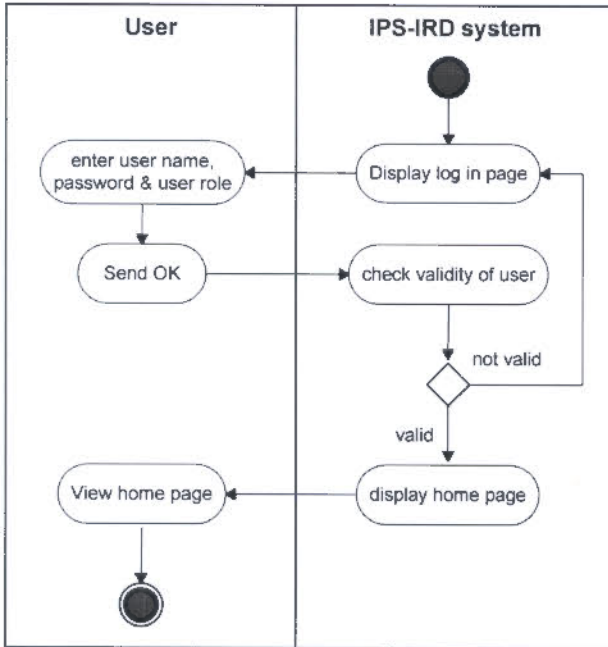


University of Moratuwa, Sri Lanka.  
 Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)



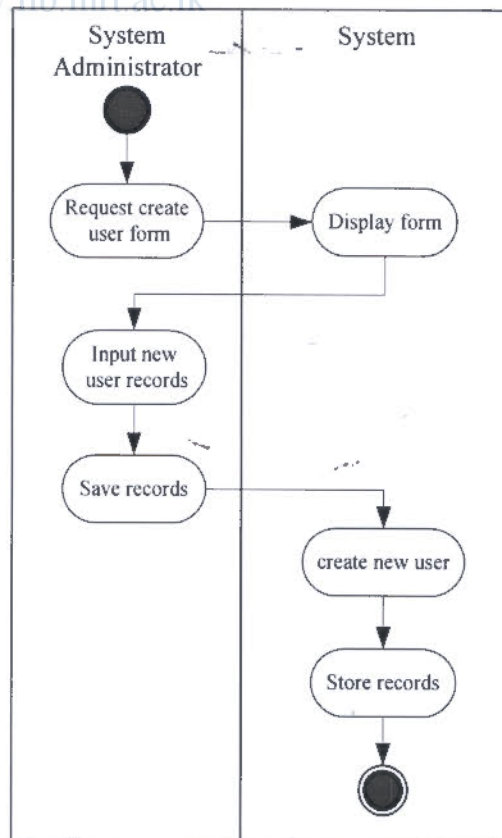
## Appendix F – Activity diagrams of proposed system

### 1. Log in

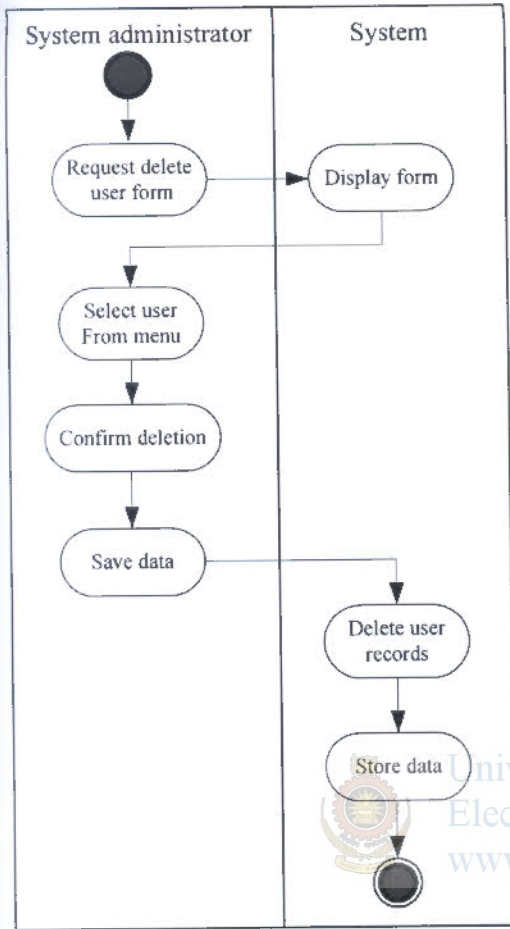


University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
www.lib.mrt.ac.lk

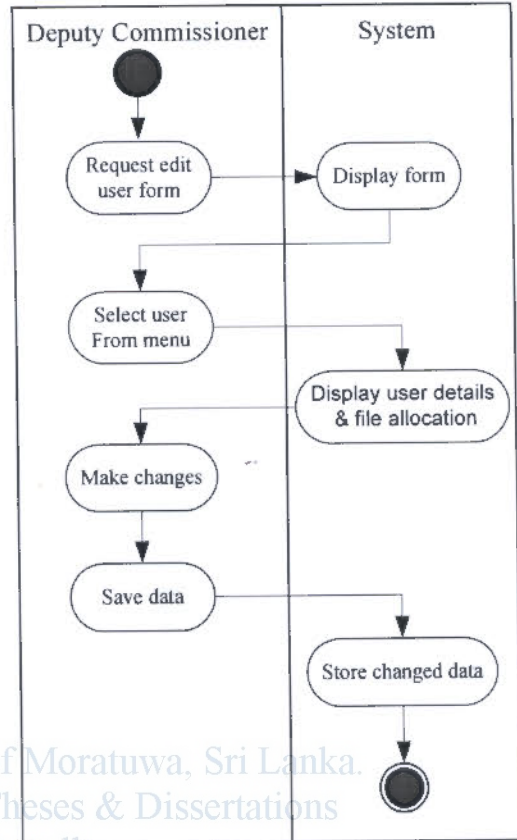
### 2.1 Create User



## 2.2 Delete User

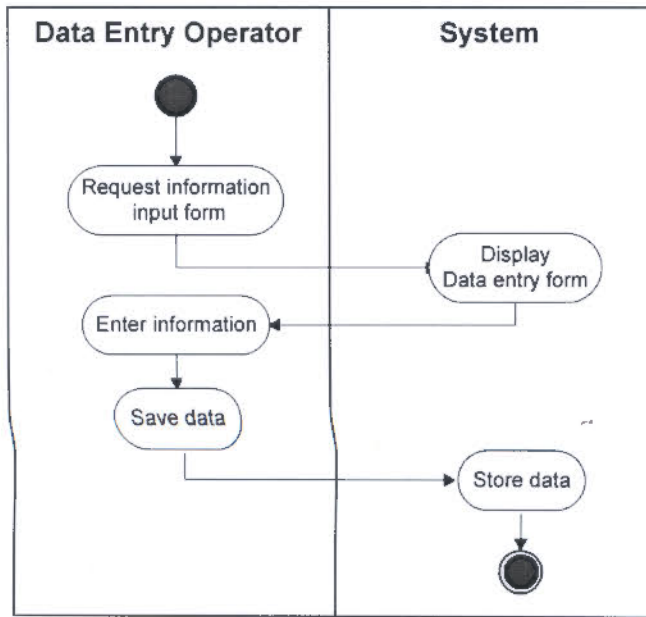


## 2.3 Edit User



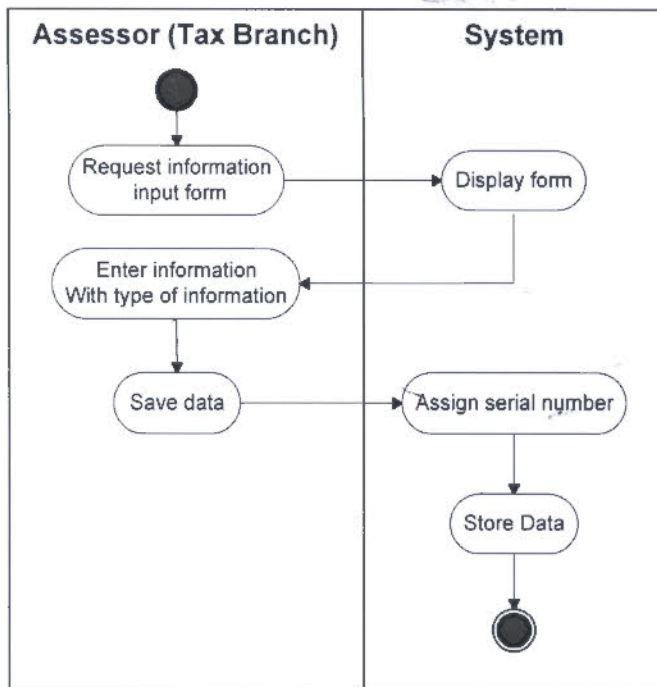
3.1 Input information

external

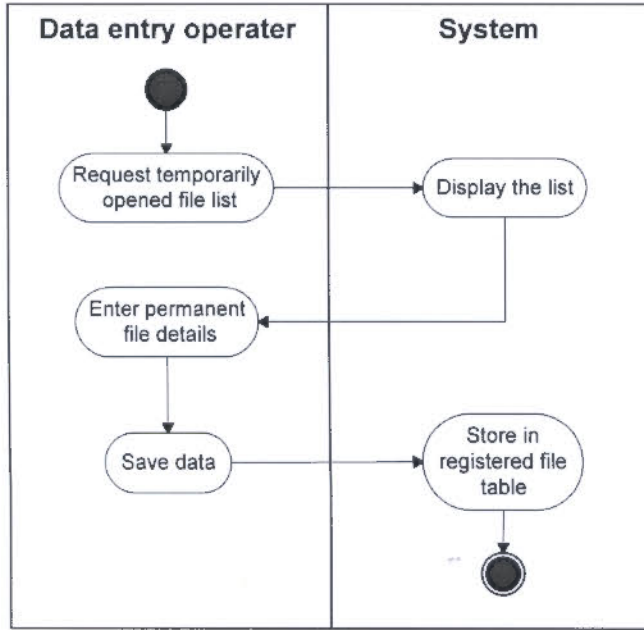


University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)

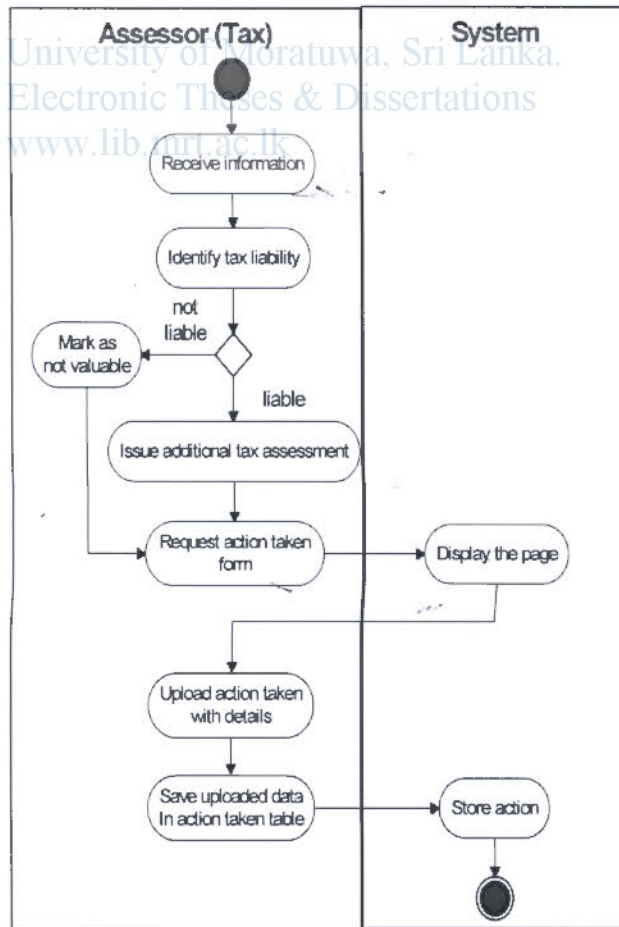
3.2 Input Internal information



### 3.3 Input new tax files

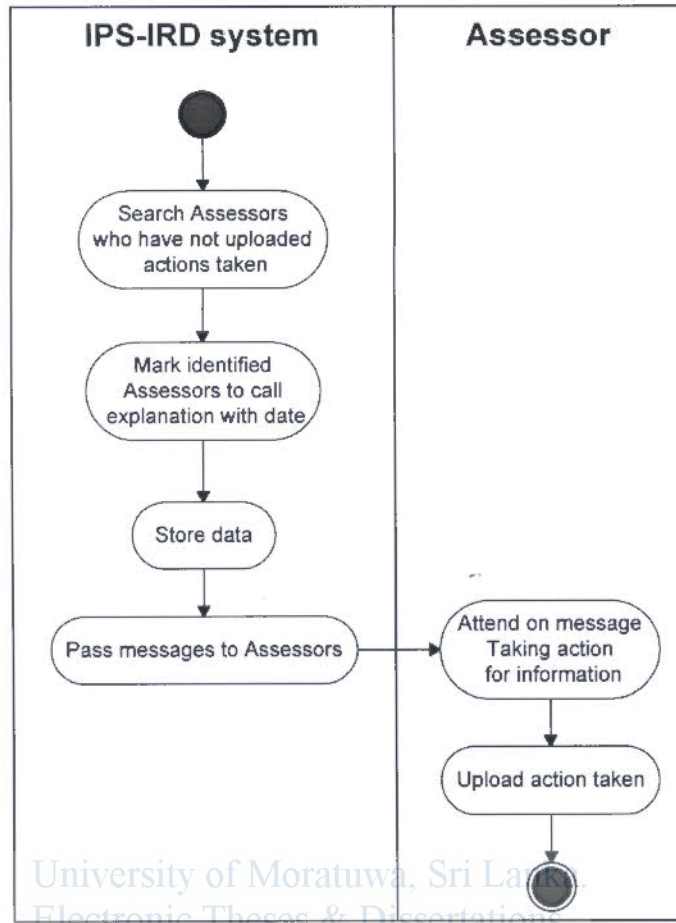


### 5. Upload action taken



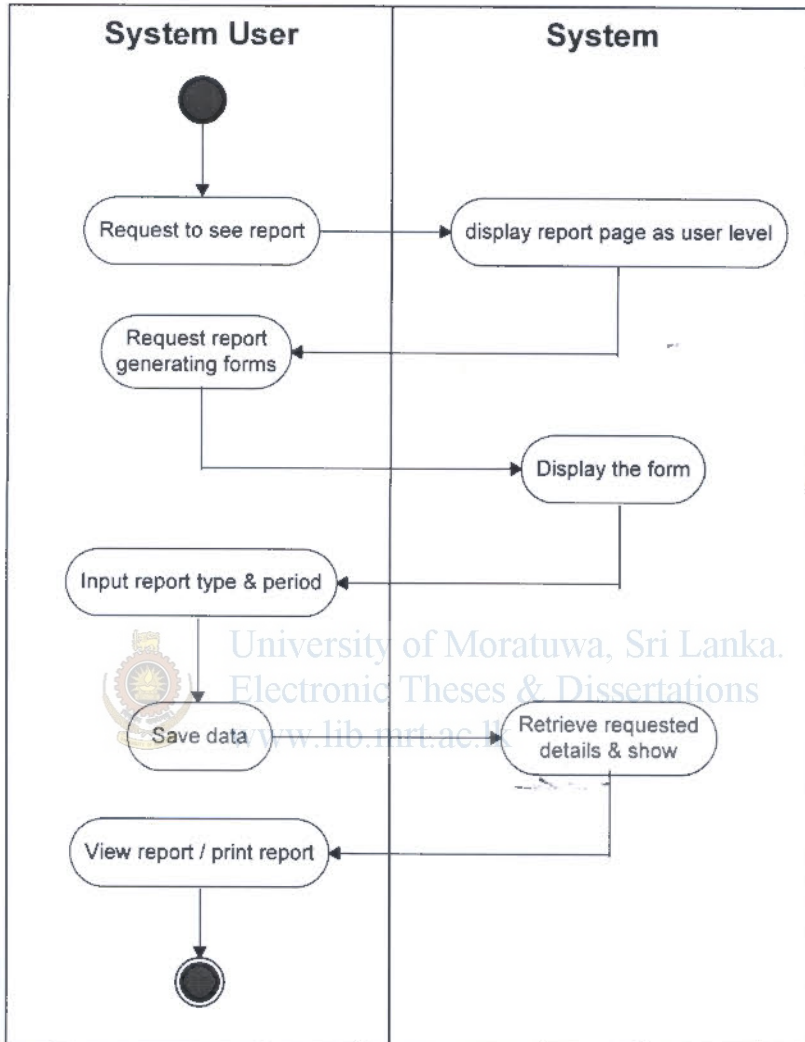


6. Call explanations



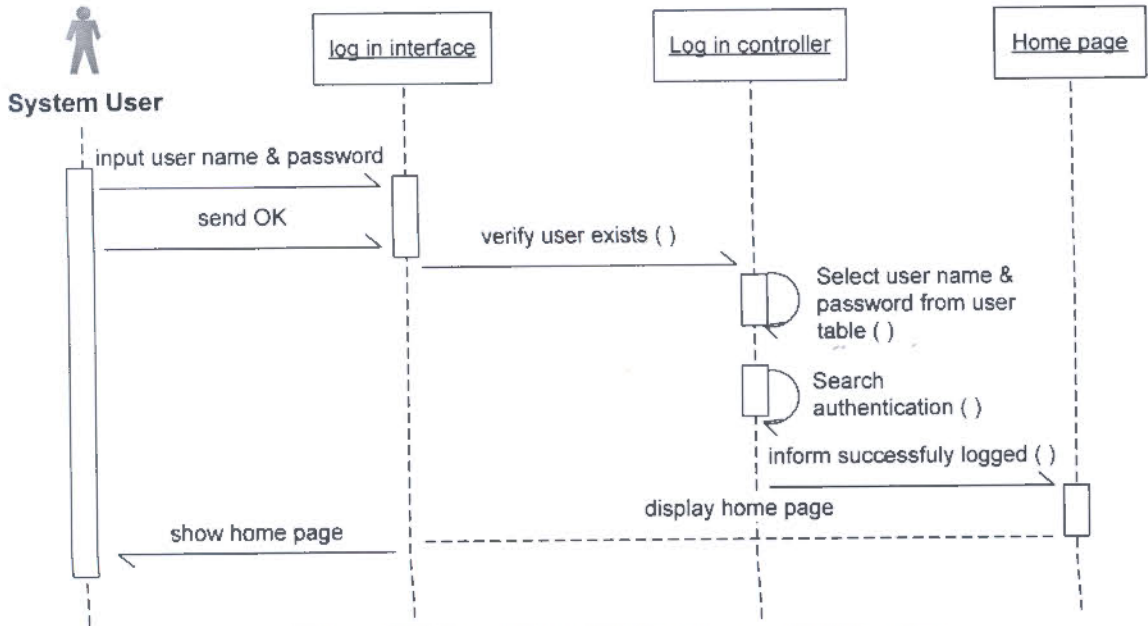
University of Moratuwa, Sri Lanka  
Electronic Theses & Dissertations  
www.lib.mrt.ac.lk

## 7. View Reports



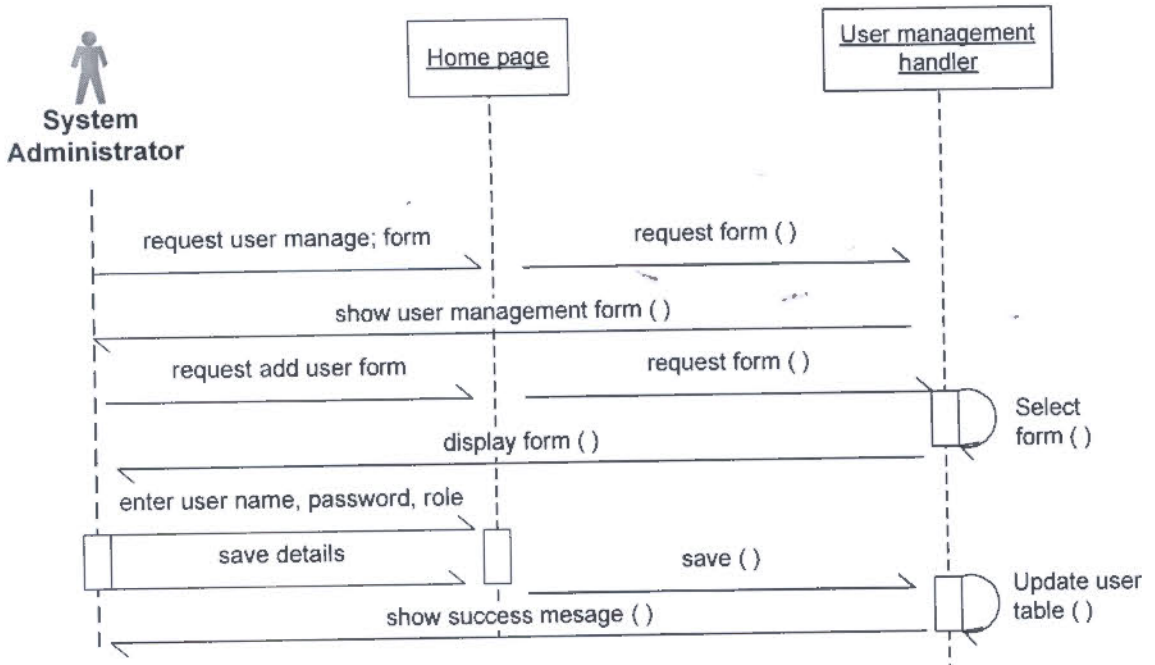
# Appendix G – Sequence diagrams of proposed system

## 1. Log in

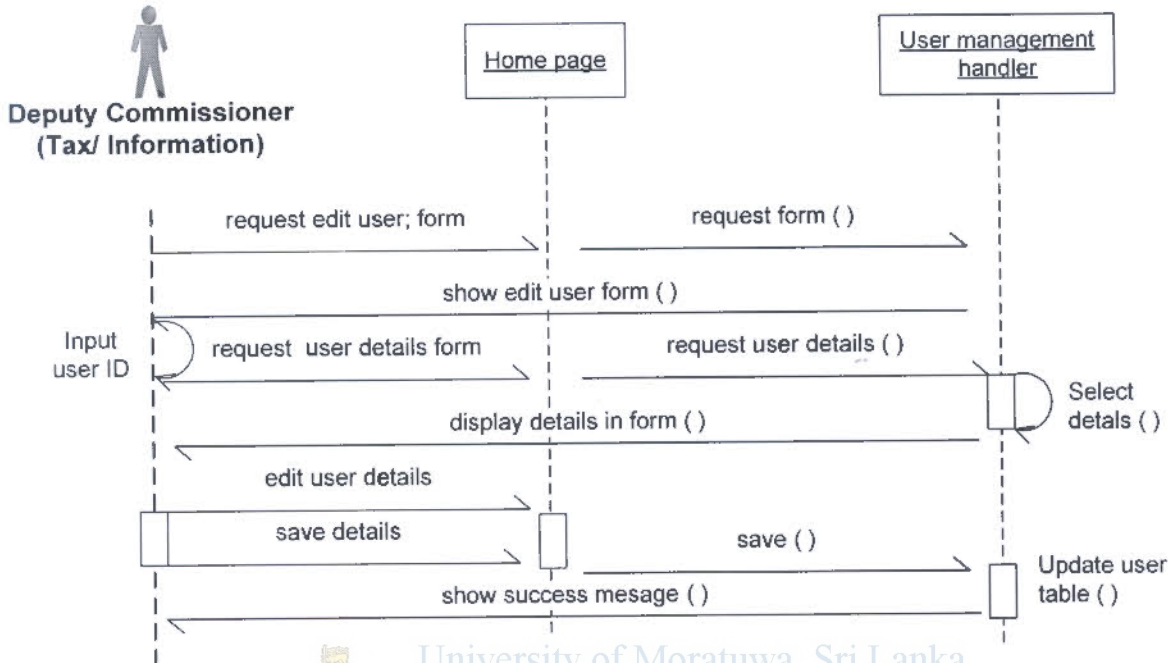


University of Moratuwa, Sri Lanka.  
 Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)

## 2.1 Create User

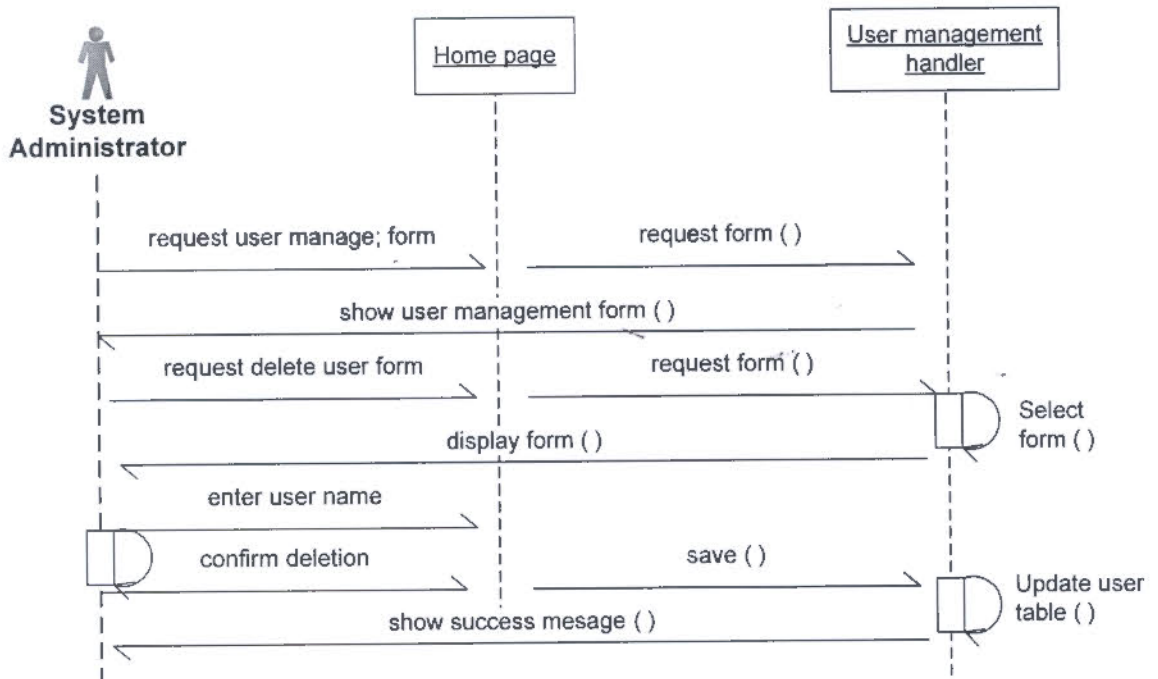


## 2.2 Edit User

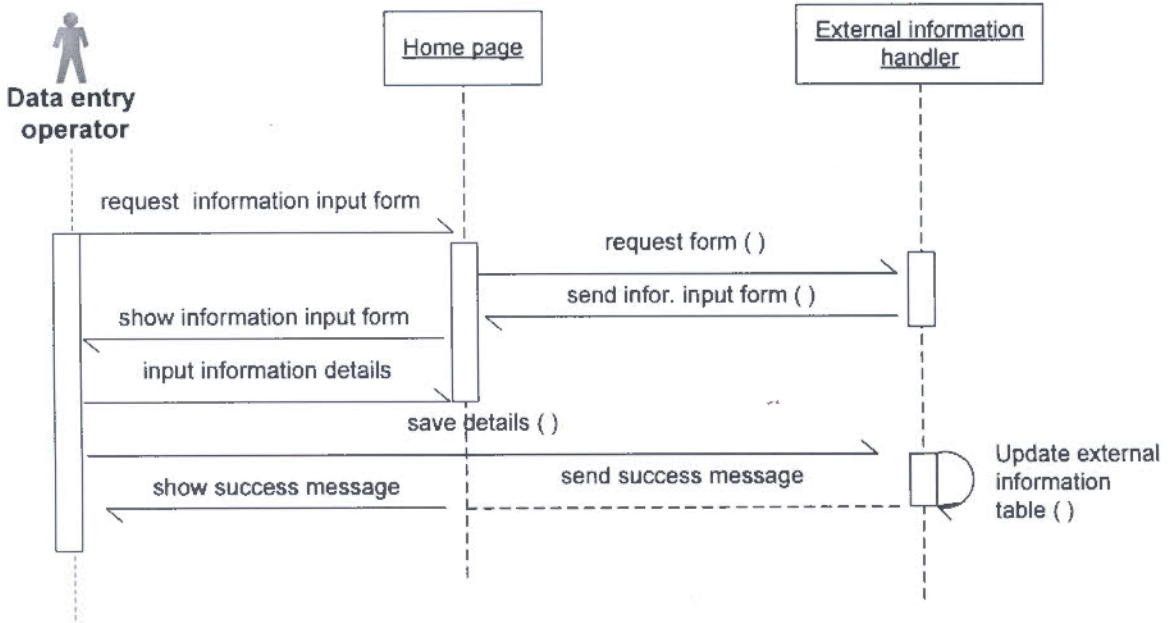


University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)

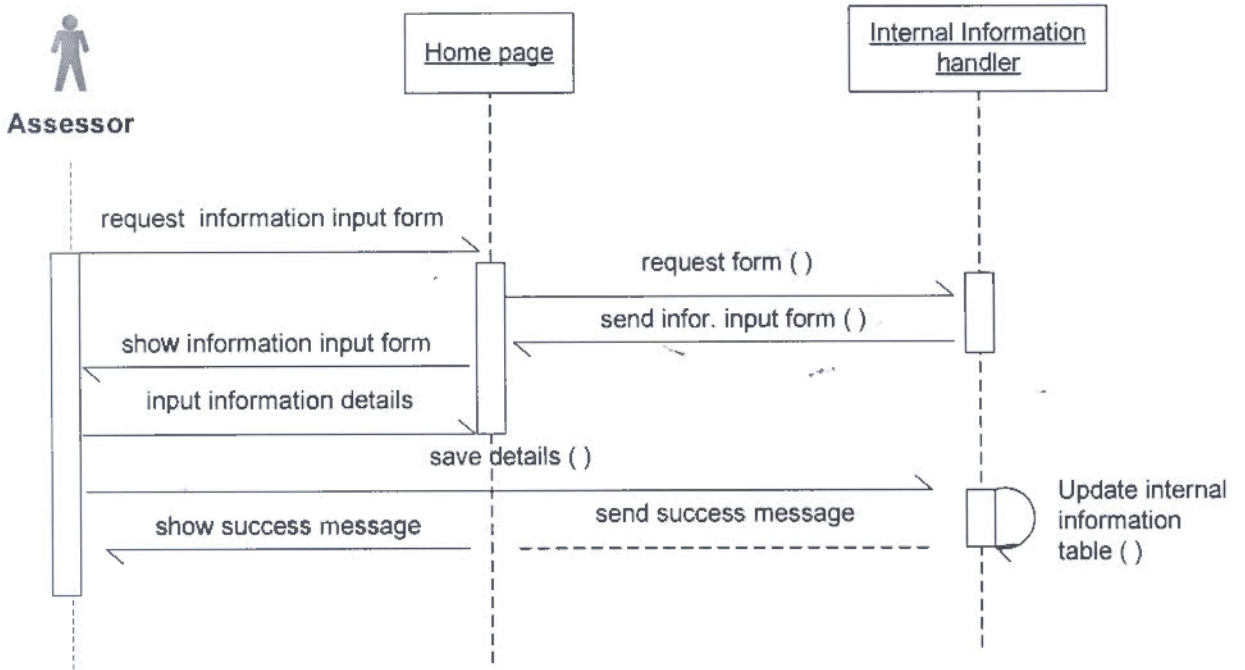
## 2.3 Delete User



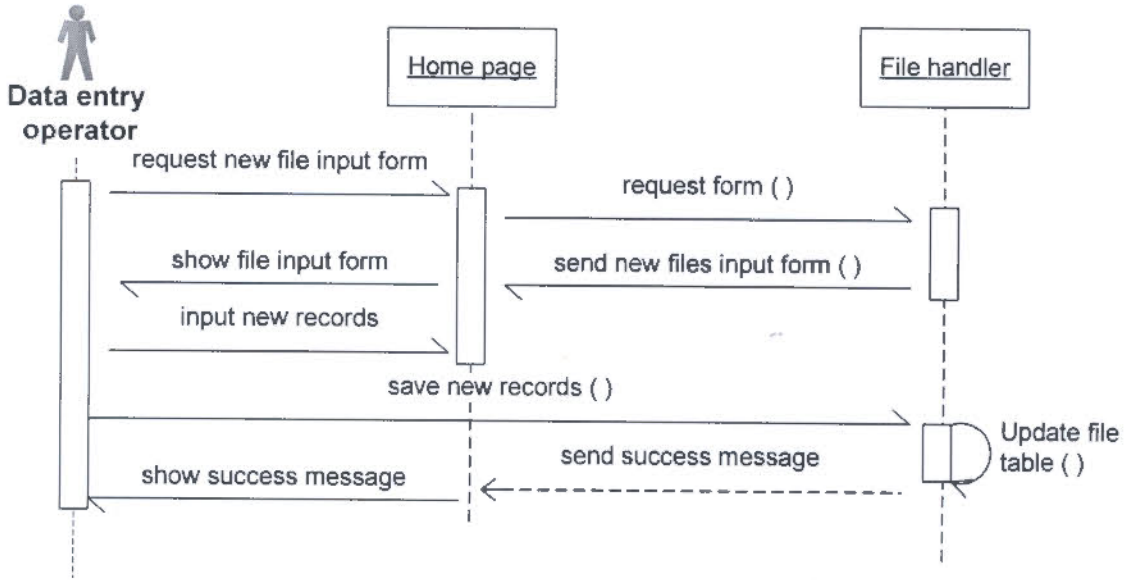
### 3.1. Enter External Information



### 3.2 Enter Internal Information

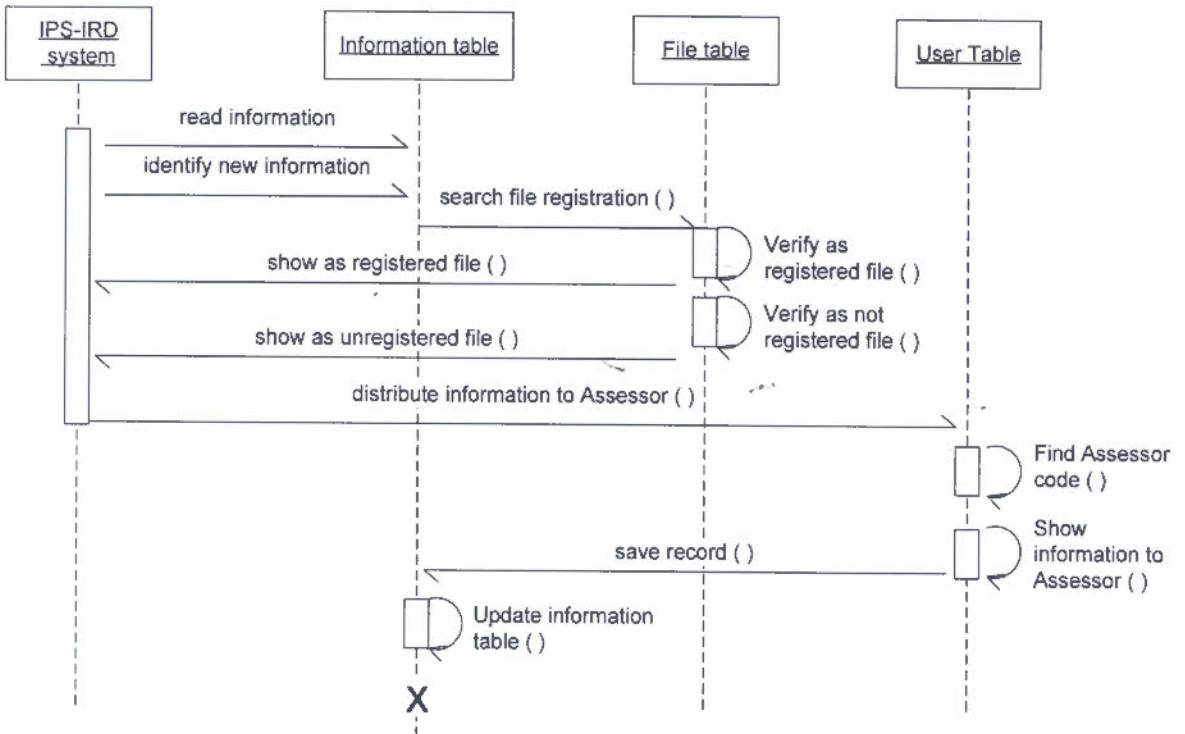


### 3.3 Input New Files

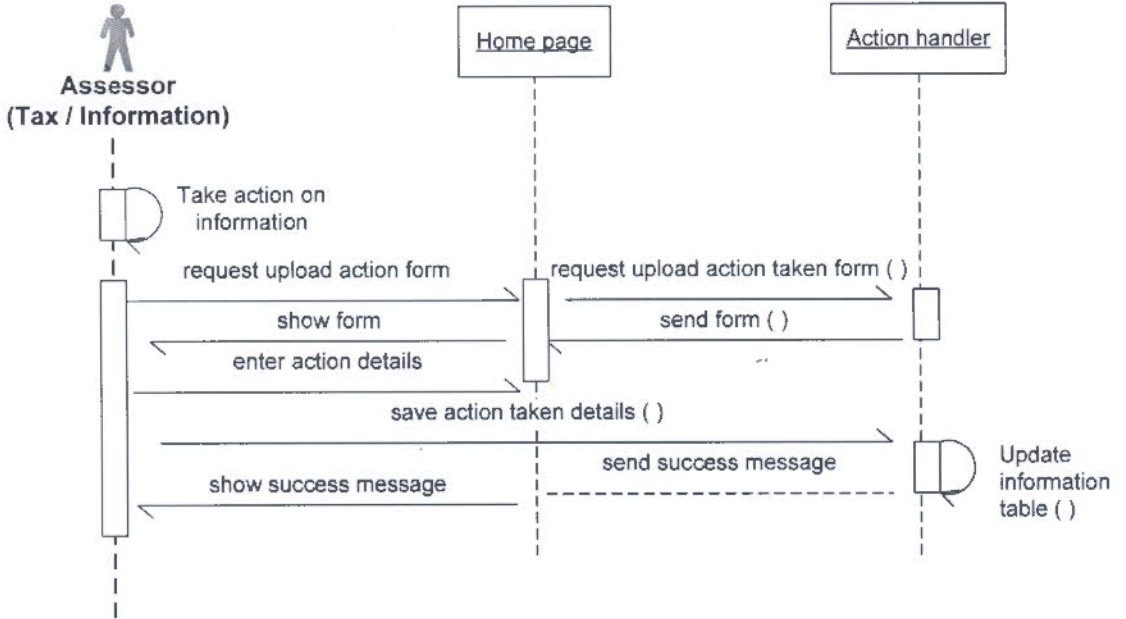


University of Moratuwa, Sri Lanka.  
 Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)

### 4. Distribute Information

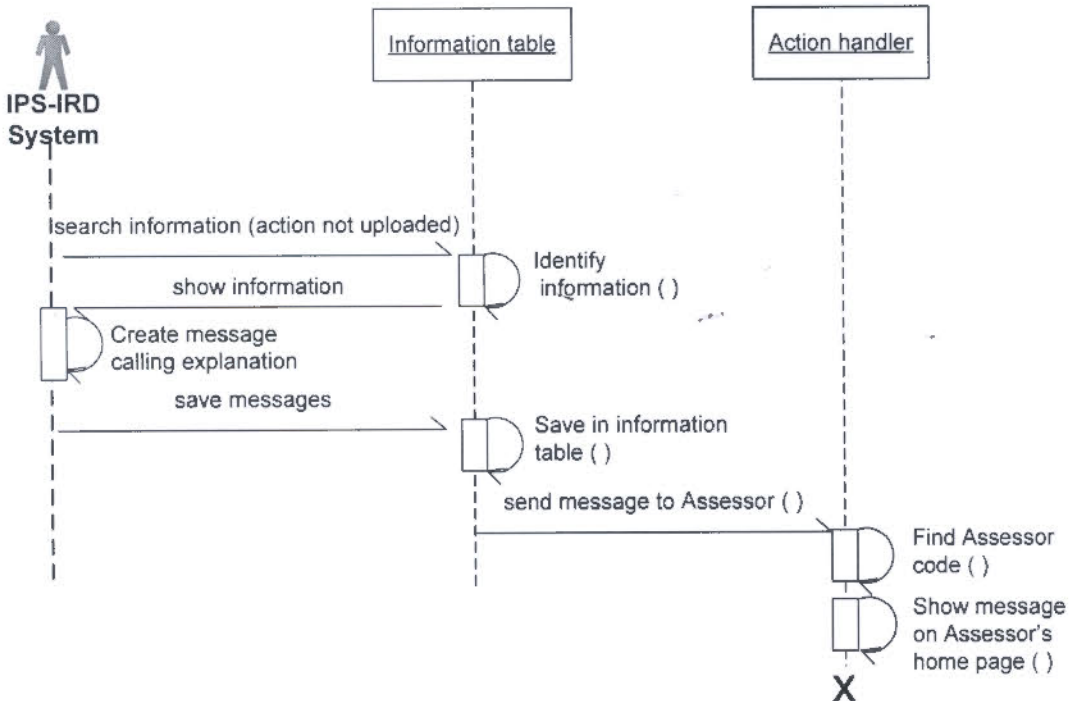


### 5. Upload Action Taken



University of Moratuwa, Sri Lanka.  
 Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)

### 6. Call Explanations



## Appendix H – Database tables of IPS-IRD system

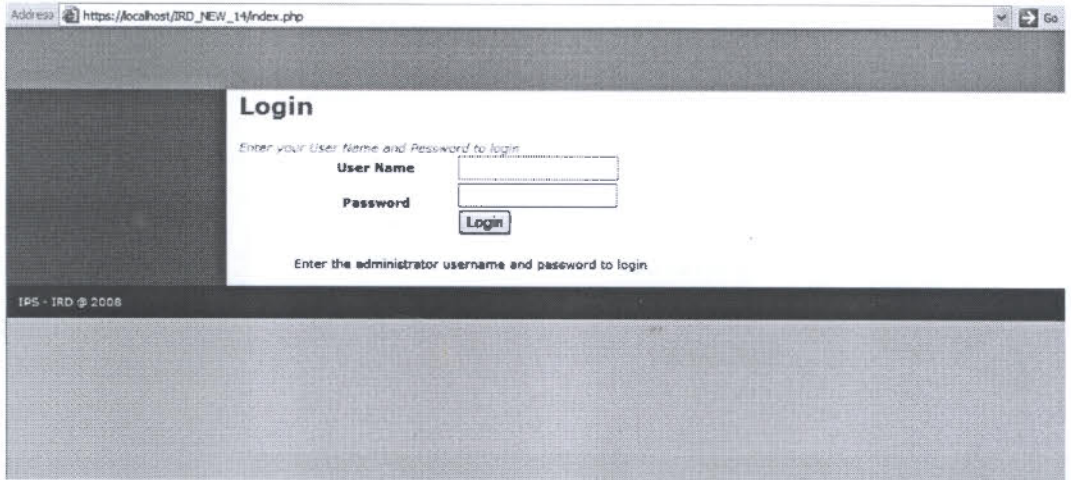
Data base name – ird

Entity	Fields	Data type	Not null	Input type (auto)
Tax information	infor_no	integer	yes	yes
	infor_id	varchar	yes	
	infor_category	varchar		
	infor_name	varchar		
	information_address	varchar		
	information_done_date	date		
	information_type	varchar		
	information_amount	varchar		
	source_of_information	varchar		
	originated_branch	varchar	yes	
	infor-remarks	varchar		
	officer_id	integer	yes	
	action_id	varchar		
	tin	integer		
u-id	integer			
Tax file	tin	integer	yes	
	company_name	varchar	yes	
	company_address	varchar	yes	
	address_postal_area	varchar	yes	
	reg_date	date	yes	
	assessor-code	varchar	yes	
	branch	varchar	yes	
Ird_user	user_id	integer	yes	
	user_name	varchar	yes	
	password	varchar	yes	
	user_role	varchar	yes	
	user_type	varchar	yes	
	branch	varchar	yes	
	commence_date	date	yes	
	delete_date	date		
Branch	tin	integer	yes	
	u-id	integer	yes	
	brach	varchar	yes	
Action taken	action_id	varchar	yes	
	action-description 1	varchar		
	action-description 2	varchar		
	action_date	date	yes	



# Appendix- I – GUI screen shots

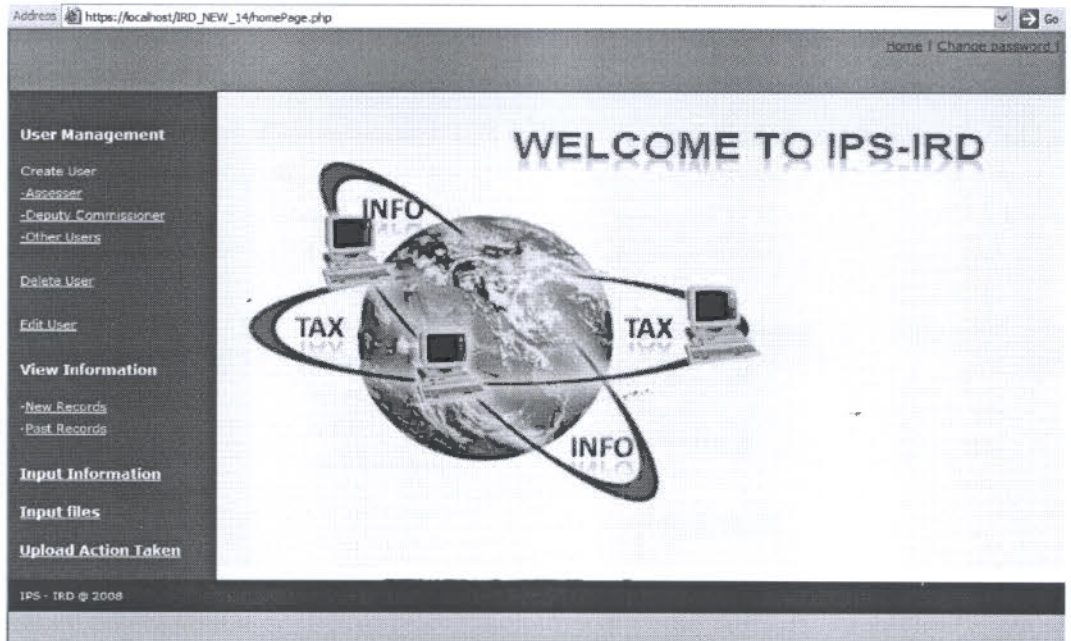
## 1. User log-in interface



## 2. Home page



University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)



### 3.1 Create user interface (Assessor)

Address: [https://localhost/IRD\\_NEW\\_14/Assessor.php](https://localhost/IRD_NEW_14/Assessor.php) Home | [Change password](#)

**User Management**

- Create User
  - Assessor
  - Deputy Commissioner
  - Other Users
- Delete User
- Edit User

**View Information**

- New Records
- Past Records

**Input Information**

**Input files**

**Upload Action Taken**

TPS - IRD © 2008

User ID:

User name:

Password:

User Role: ASSESSOR

Allocated Branch: UNIT 10

Assessor Code: ASS-

Assessor Type: INFORMATION

Date of Commence as user: 2009-1-17

Insert Reset



University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations

### 3.2 Create user interface (Deputy Commissioner)

Address: [https://localhost/IRD\\_NEW\\_14/Deputy\\_Commissioner.php](https://localhost/IRD_NEW_14/Deputy_Commissioner.php) Home | [Change password](#)

**User Management**

- Create User
  - Assessor
  - Deputy Commissioner
  - Other Users
- Delete User
- Edit User

**View Information**

- New Records
- Past Records

**Input Information**

**Input files**

**Upload Action Taken**

TPS - IRD © 2008

User ID:

User name:

Password:

User Role: DEPUTY COMMISSIONER

Allocated Branch: UNIT 10

DC Code: DC-

DC Type: INFORMATION

Date of Commence as user: 2009-1-17

Insert Reset

### 3.3 Create user interface (Other users)

The screenshot shows a web browser window with the address bar displaying 'https://localhost/IRD\_NEW\_14/Other\_Users.php'. The page has a dark sidebar on the left with the following menu items: **User Management** (Create User, Assessor, Deputy Commissioner, Other Users, Delete User, Edit User), **View Information** (New Records, Past Records), **Input Information** (Input files), and **Upload Action Taken**. The main content area contains a form with the following fields: User ID (empty), User name (empty), Password (empty), User Role (dropdown menu with 'DATA ENTRY OPERATOR' selected), Officer Code (dropdown menu with 'DEO NO.' selected), Allocated Branch (dropdown menu with 'INFORMATION' selected), and Date of Commence as user (empty). At the bottom of the form are 'Insert' and 'Reset' buttons. The footer of the page reads 'IPS - IRD © 2008'.



University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
www.lib.mrt.ac.lk

### 4. Delete user interface

The screenshot shows a web browser window with the address bar displaying 'https://localhost/IRD\_NEW\_14/delete\_user.php'. The page has a dark sidebar on the left with the following menu items: **User Management** (Create User, Assessor, Deputy Commissioner, Other Users, Delete User, Edit User), **View Information** (New Records, Past Records), **Input Information** (Input files), and **Upload Action Taken**. The main content area contains a form with the following fields: User ID (text box with '1025'), User name (text box with 'S.DISANAYAKA'), User Role (dropdown menu with 'DEPUTY COMMISSIC' selected), Allocated Branch (dropdown menu with 'UNIT\_15' selected), and Delete Date of user (text box with '2009-1-17'). At the bottom of the form is a 'Delete' button. The footer of the page reads 'IPS - IRD © 2008'.

## 5. pre-edit user interface and pre-edit user interface

User Name	User Role	Branch	Action
C.VEERAKOON	DEPUTY COMMISSIC	INFORMATION	Select
AB.SILVA	ASSESSOR	UNIT_14	Select
G.WEERASENA	DEPUTY COMMISSIC	UNIT_14	Select
R.KULAWANSHA	DEPUTY COMMISSIC	UNIT_12	Select
P.S.MALAKA	DEPUTY COMMISSIC	UNIT_10	Select
S.D.ISANAYAKA	DEPUTY COMMISSIC	UNIT_15	Select
LBANDARA	ASSESSOR	UNIT_12	Select
V.D.RATNAYAKA	ASSESSOR	UNIT_08	Select
G.K.JAYAMANNA	ASSESSOR	UNIT_14	Select
W.SENAKA	ASSESSOR	UNIT_08	Select
L.PUBUDU	ASSESSOR	INFORMATION	Select
M.C.ALVIS	ASSESSOR	INFORMATION	Select
E.D.RANAWEEERA	ASSESSOR	INFORMATION	Select
V.MALKANTHI	ASSESSOR	UNIT_10	Select
G.L.WIJERATHNA	ASSESSOR	UNIT_12	Select
E.N.EKANAYAKA	ASSESSOR	UNIT_08	Select
P.K.DIAS	ASSESSOR	UNIT_15	Select
S.PPEMALATA	DATA ENTRY OPERA	INFORMATION	Select



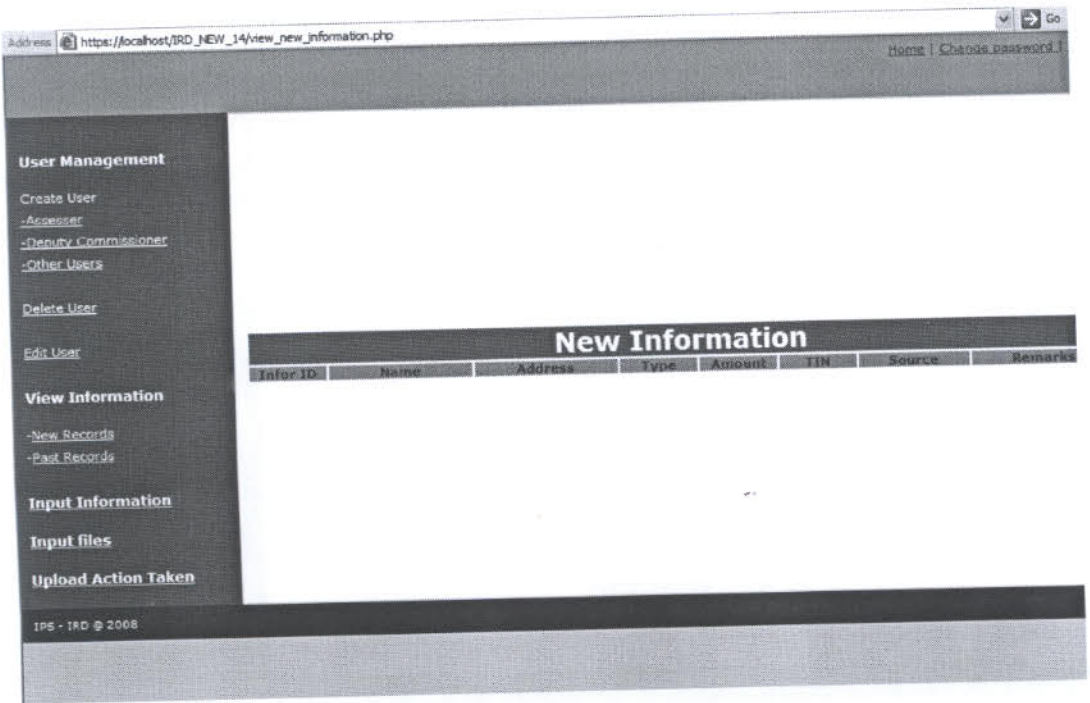
University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
www.lib.mrt.ac.lk

## 6. View past information interface

Information of past Data							
Date	Name	Address	Type	Amount	TIN	Source	Remark
2008-02-25	AMBA CO.LTD	NO.5/20, RUWAN PL. RATHNAPURA	vehicle	2,500,000	222330444	RHV DEPT.	NIL
2009-03-06	NANASA CO.LTD	34, RAILWAY AV, RATHALANA	land	6,000,000	111222334	LAND REGISTRY	NIL
2009-01-08	HIRANTHI	NIL	new company	400,000	333444552	INSPECTION	NIL
2008-03-05	NARAN CO PVT LTD	57,VAYA PARA,ANURADHAPURAYA	land	5,100,000	235334445	LAND REGISTRY	NIL
2008-10-20	IMRAN CO PVT LTD	30,MAIN ST,GALLE	new bussiness	600,000	236335446	CUSTOM DATA	NIL
2009-01-13	LAMA CO LTD	1/23,PETER MAWATHA,COLOMBO 14	salary	4,000,700	217336447	INSPECTION	NIL
2008-08-26	KALUTHARA FINANCE CO LTD	24,KALUTHARA	tax invoice	700,000	333444552	CUSTOM DATA	VAT CLAIM

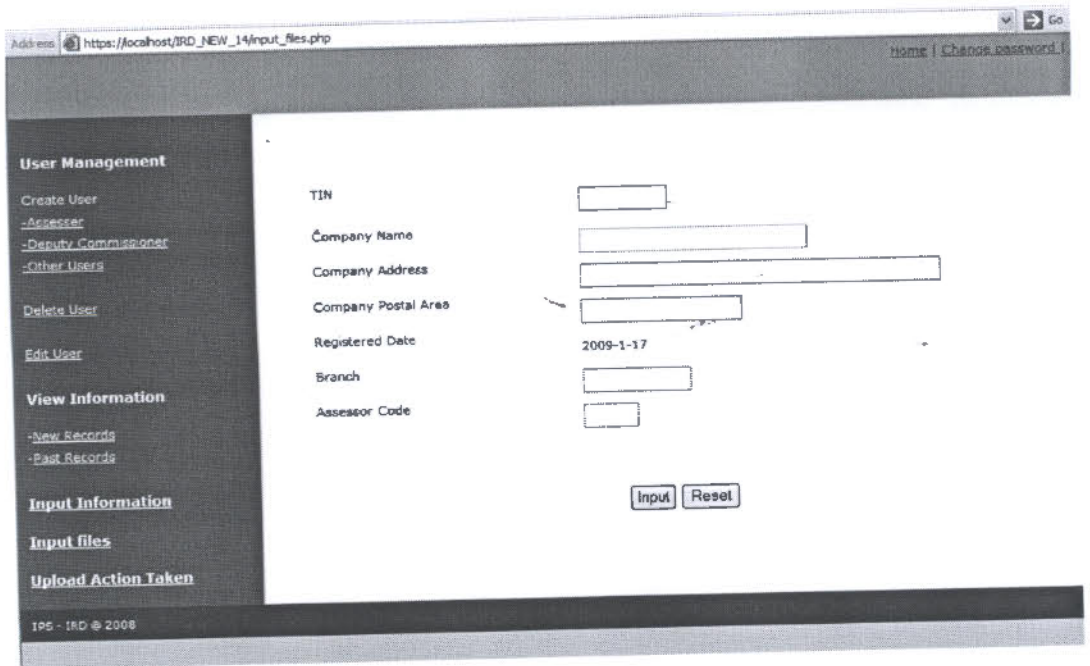


## 7. View new information interface



University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)

## 8. Input files interface



## 9. Input information interfase

Address: [https://localhost/IRD\\_NEW\\_14/input\\_information.php](https://localhost/IRD_NEW_14/input_information.php) Home | [Check password](#)

**User Management**

- Create User
  - Asseser
  - Deputy Commissioner
  - Other Users
- Delete User
- Edit User

**View Information**

- New Records
- Past Records

**Input Information**

**Input files**

**Upload Action Taken**

Select Information Category: External

Information ID:

Information Name:

Information Address:

Information Type: vehicle

Information Amount:

Source of Information:

Originated Branch: INFORMATION

Officer Code:

Tin:

Information Remarks:

Information done date: 2009-1-17

IPS - IRD © 2008



University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)

## 10. Pre-action interface

Address: [https://localhost/IRD\\_NEW\\_14/preaction.php](https://localhost/IRD_NEW_14/preaction.php) Home | [Check password](#)

**User Management**

- Create User
  - Asseser
  - Deputy Commissioner
  - Other Users
- Delete User
- Edit User

**View Information**

- New Records
- Past Records

**Input Information**

**Input files**

**Upload Action Taken**

Information ID	Information Name	Action
EXT01	ABC CO PVT LTD	Select
EXT02	AMBA CO LTD	Select
INTL01	DFFD CO LTD	Select
INTL02	RASARA CO LTD	Select
EXT03	HAVA ENTERPRISES	Select
EXT04	NIL	Select
EXT05	NANASA CO LTD	Select
EXT06	TARU CO PVT LTD	Select
EXT07	HIRANTHI	Select
EXT-08	RAJA CO PVT LTD	Select
INTL03	NARAN CO PVT LTD	Select
INTL04	IMRAN CO PVT LTD	Select
EXT09	LAMA CO LTD	Select
INTL05	KALUTHARA FINANCE	Select
INTL18	asdf	Select
12	12	Select

## 11. Upload-action interface

The screenshot shows a web browser window with the address bar displaying `https://localhost/IRD_NEW_14/upload_action.php`. The page has a dark sidebar on the left with the following menu items:

- User Management**
  - Create User
    - Assesser
    - Deputy Commissioner
    - Other Users
  - Delete User
  - Edit User
- View Information**
  - New Records
  - Past Records
- Input Information**
  - Input files
  - Upload Action Taken

The main content area contains the following form elements:

- Information ID**: A text input field containing the value `INTL18`.
- Enter Action Taken**: A text area containing the text `1.File opened permanently`.
- Action Taken Data 2009-1-17**: A label above a text input field.
- Upload**: A button to submit the form.

At the bottom left of the page, the text `IPS - IRD © 2008` is visible.



University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)

## Appendix J- Test Cases

Test Case – 02

Test Component – Delete User

Test case Description

	<b>Input Activity(s)</b>	<b>Expected Output</b>	<b>Status</b>
(1)	Click on the link “Delete User”	Load Delete User page with empty field boxes.	Success
(2)	Enter correct user id and click “search”	Displays all the user information user name, password, user type, Branch id, commence date in field boxes.  Load message asking to confirm “delete user” together with check box (03 buttons “delete”, “reset”, “cancel”)	Success
(3)	Enter not exists user id and click search	Error message should be displayed as “User does not exists”	Success
(4)	Click “delete”	Display Message “user details are successfully deleted” together with a button “ok”. (deleted date must be recorded in database automatically.	Success
(5)	Click “ok”	Delete Message and redirect Delete User page	Success
(6)	Click “reset”	Empty the text fields allowing user to enter new details in same page.	Success
(7)	Click cancel	Go to the home page	Success



Tested Data & Result for Test case -02

Item No	Sample Data	Data specification	Path Result	System result
(1)	User ID : 3020	Text, Numeric	Displayed user details	Valid user identified
(2)	User ID : 7823	Text, Numeric	Displayed message "User does not exists"	Identified user does not exists.

Test Case – 03

Test Component – Edit User

Test case Description

	Input Activity(s)	Expected Output	Status
(1)	Click on the link "Edit User"	Load Edit User page with menu selection with "search" button for User Id and empty field boxes together with "Save", "Reset" buttons.	Success
(2)	Select U.ID from menu and click "Search"	Displays all the user information user name, password, user type, Branch id, Allocated files in field boxes.	Success
(3)	Edit any field wanted and click "Save"	Display message "Done" and redirect page.	Success

Tested Data & Result for Test case – 03

Item No	Sample Data	Data specification	Path Result	System result
(1)	User ID : 3020	Text, Numeric	Displays user details	Successfully changed Id.
(2)	User ID : 8250	Text, Numeric	Displayed message "User does not exists"	Identified user does not exist.

Test Case – 04

Test Component – Change Password

Test case Description

	<b>Input Activity(s)</b>	<b>Expected Output</b>	<b>Status</b>
(1)	Click on the link “Change Password”	Load Change Password page with logged users’s user er Id and empty field boxes together with “Save”,” Reset” buttons.	Success
(2)	Select U.ID from menu and click “Search”	Displays all the user information user name, password, user type, Branch id, Allocated files in field boxes.	Success
(3)	Edit any field wanted and click “Save”	Display message “Done” and redirect page.	Success

Tested Data & Result for Test case - 03

<b>Item No</b>	<b>Sample Data</b>	<b>Data specification</b>	<b>Path Result</b>	<b>System result</b>
(1)	User ID : 3020	Text, Numeric	Displays user details	Successfully changed edited fields
(2)	User ID : 8250	Text, Numeric	Displayed message “User does not exists”	Identified user does not exist.

Test Case – 05

Test Component – Input Information

Test case Description

	<b>Input Activity(s)</b>	<b>Expected Output</b>	<b>Status</b>
(1)	Click on the link “Input Information”	Load “input information” page with empty field boxes together with “Save”,” Reset” buttons.	Success

(2)	Select check box on external information	Database marked as incoming data relates to an external information.	Success
(3)	Select check box on internal information	Database marked as incoming data relates to an internal information	Success
(4)	Input Information in field boxes Click "Save"	All the data successfully stored in the database.	Success
(5)	Click "Reset"	Empty the text fields allowing user to enter new details in same page.	Success

Tested Data & Result for Test case - 05

Item No	Sample Data	Data specification	Path Result	System result
(1)	Company name: Magala pvt.ltd Co. Address: No.34, Negombo Type: land Done date: 01022008 Amount: 10,000,000 Source : Land registry File Id: 0102084 Remarks : ' ' Received date: 01052008 TIN: ' ' DEO No : 5050	Text, Numeric	Displayed message " Done"	Successfully stored in database.

Test Case – 06

Test Component – Input Files

Test case Description

	<b>Input Activity(s)</b>	<b>Expected Output</b>	<b>Status</b>
(1)	Click on the link “Input Files”	Load “input Files” page with empty field boxes together with “Save”, “Reset” buttons.	Success
(2)	Input tax-file details and click “Insert”	File details recorded in tax-file table	Success
(4)	Input existing tax-file details and click “Insert”	Not allow to insert.	Success
(5)	Click “Reset”	Empty the text fields allowing user to enter new contract id in same page.	Success

Item No	Sample Data	Data specification	Path Result	System result
(1)	Company name: Magala pvt.ltd Co. Address: No.34, Negombo TIN: 100500800 Reg.date: 07082008 Ass.Id: 3025	Text, Numeric	Displayed message "Done"	Successfully stored in database.
(2)	Company name: Magala pvt.ltd Co. Address: No.34, Negombo TIN: 100500800 Reg.date: 07082008 Ass.Id: 3025	Text, Numeric	Displayed message " tax- file already exists."	Database refused input data.

University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
www.lib.mrt.ac.lk

Test Case – 07

Test Component – Upload Action Taken

Test case Description

	Input Activity(s)	Expected Output	Status
(1)	Click on the link "Upload Action Taken"	Load "Pre-action" page with information id's received to the logged user.	Success
(2)	Select information id from list	Load "Upload Action" page	Success
(4)	Select action and if any number or description entered	All the data successfully stored in the database.	Success



	and click "Upload"		
(5)	Click "Reset"	Empty the text fields allowing user to enter new contract id in same page.	Success

Tested Data & Result for Test case - 06

Item No	Sample Data	Data specification	Path Result	System result
(1)	File opened permanently TIN: 100500800	Text, Numeric	Displayed message" Action inserted"	Successfully stored in database.



University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)

