CHAPTER 4

DATABASE AND PROGRAM PERFORMANCE

4.1. Analysis about accident database and program

Purpose of program performance is to ensure that accident information system works on appropriate systems.

Appropriate accident information systems are:

1. The program can be installed in any computer
2. The system information can be accessed by inspector easily.
3. When the inspector click Log In with their name and password, their name will be appeared automatically in the Inspector Name and ID in the end of report. Thus the inspector will be the responsible one about the data.
4. Database can be saved in C: Drive
5. Retrieve from database if inspector needs previous accident data.
6. Search from "quick search" box with the specific keyword if inspector needs specific information from database.
7. Add new information in database, if the data is not available in current database.
8. The output of the report is in PDF format, thus the file cannot be changed, except when the inspector deletes it and rewrites a new one.
9. Statistic output from this program is Cross tabulation.

Operating Program

1. Copy file master database to drive C:
2. Install XAMPP in new computer at drive C:
3. Choose list Control Panel, click start in apache and MYSQL
4. Open web browser Mozilla Firefox or Internet Explorer
5. Type "http://Localhost/accident"
6. Accident analysis program opened

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Add New Information

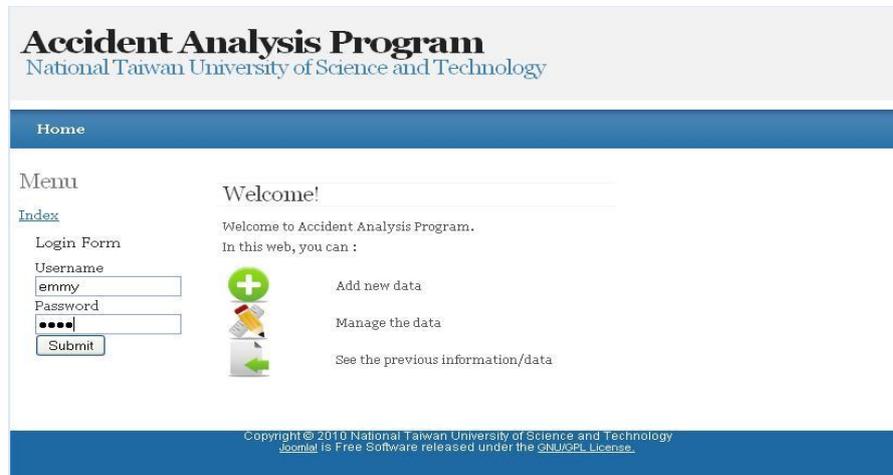1. Log In form fill in the User name and Password that mentioned in master database then click Submit.
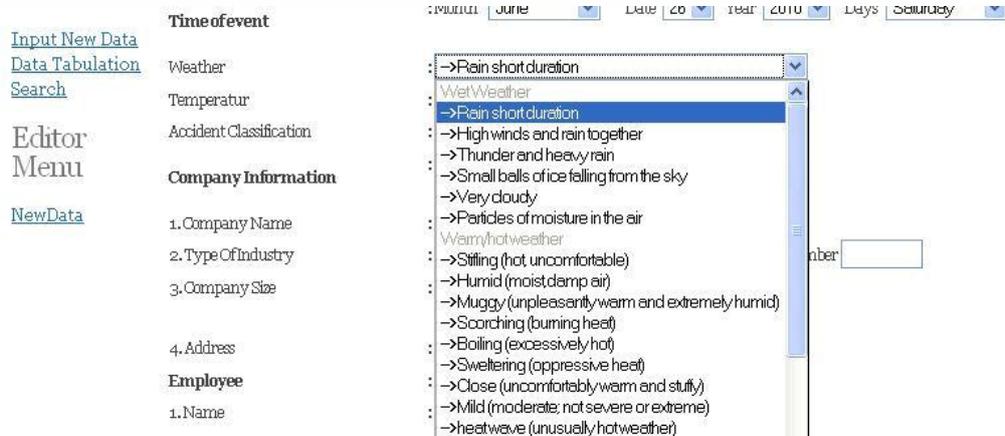

Figure 4.1 Log in menu

2. Click "Input New Data",

Figure 4.2 Main menu and editor menu

3. Enter the time of event in term of month, date and year.

Figure 4.3 Input new data and time of event

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4. Select weather when the accident occurred.

Figure 4.4 Weather selective information box

5. Write temperature when the accident occurred, fill with number, temperature should be at Celcius degree.

Figure 4.5 Temperature box

6. And select the accident classification.

Figure 4.6 Accident classification selection box

7. Fill the Company Information, first write Company Name.

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8. Select Type of Industry and write the code number.

Figure 4.7 Type of industry selective box

9. Select Company Size.

Figure 4.8 Company size selection box

10. Write Company Address.

11. Fill the Employee information. Write the employee or the victim name and number of identity. Number of identity can be number or mixed between numbers and letters.

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12. Select employee Gender.

Figure 4.9 Gender selection box

13. Select employee Age.

Figure 4.10 Age selection box

14. Write Home Address, Phone Number, Occupation and fill the Working experience (how many days, month, and year). Do not let the form unfilled. Working experience should be filled with number/s.

15. Fill the Accident Information, write Place of Accident.

16. Task Selection. If accident occurred when the employee is doing electrical task, click button in "Electrical" and select the specific task. Besides, if accident occurred when the employee is doing non electrical task, then click button in "Non Electrical" and select the specific task.

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Figure 4.11 Electrical task when accident occurred

Figure 4.12 Non electrical task when accident occurred

17. Select Cause of Accident, if accident caused by electrical task or electrical parts, then click button in Electrical and select the specific task. Or if accident caused by construction task, then click button in construction and select the specific task.

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Figure 4.13 Cause of electrical accident selection box

Figure 4.14 Detail cause construction accident selection box

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18. Select Primary Source of Injury.

Figure 4.15 Source of injury selection box

Rules of selection:

- Identify the source of injury or illness the object, substance, element, or bodily motion which *directly produced the injury or illness previously identified* in the nature of injury or illness classification.

- If the injury or illness was inflicted by a specific **part** of a **machine, tool**, or **vehicle**, name the **whole** machine, tool, or vehicle as the source of injury except when:

  - The part separated from or was independent of the "whole";
  - The event is overexertion;
  - The injury was inflicted by an overhead power line or the electrical cord of an appliance, tool, or machine;
  - The injury was inflicted by the floor of a vehicle in a non-transportation incident; or
  - The incident involved a tractor and agricultural equipment combination.

(Source: http://wwwn.cdc.gov/oiics/Trees/Source.aspx)

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In these instances, code that **part** as source of injury.

- If the injury or illness was inflicted by a specific **part** of a **structure** (window, door, stairs) name that **part** as the source of injury.

- When an injury or illness was produced by a filled **container**, name the container, not the contents, as the source unless the injury or illness was directly inflicted by the contents, such as hot liquids or chemicals.

- Selecting Source from multiple objects or substances:

    - When an injury results from forcible contact with two or more objects, either simultaneously or in rapid sequence, and it is impossible to determine which object directly produced the injury, select the source as follows:

    - When the choice is **between a moving object and a stationary object, select the moving object.***Example: If a person is struck by a moving vehicle and thrown against a post, name the vehicle as the source of injury.*

    - When the choice is **between two moving objects or between two stationary** objects, **select that which was contacted last**. *Example: If a person falls from an elevator, striking one or more objects in the course of his fall, but finally striking the floor, name the floor surface as the source of injury.*(Source: http://wwwn.cdc.gov/oiics/Trees/Source.aspx).

19. Select Secondary Source of Injury.
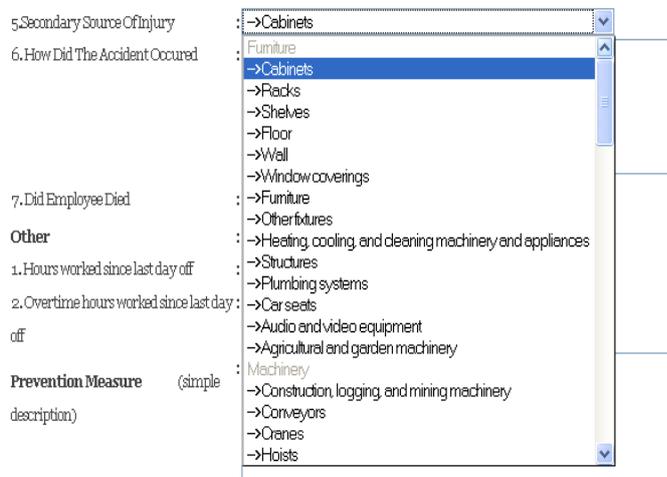
Figure 4.16 Secondary source of injury selection box

Rules of Selection:

- Use the Source of Injury or Illness Classification Structure for coding secondary source of injury or illness.

- When the source of injury or illness is a **moving object or harmful substance**, name the machine, tool or equipment which generated the source or which propelled it

- When **involuntary motion** leads to an injury or illness, name the object or substance. If no other contributing factor is named for incidents involving falls to lower levels, name the surface or object from which the worker fell.

- If the event is **Fires** or **Explosions**, name the flammable substance, name the machine, equipment, or object, other than the source, that caught fire or exploded.

- If the event is **Repetitive motion** or **Sustained viewing**, name the machine, tool, or equipment that was being used or handled.

- In the absence of a specific rule above, if **two objects or substances** contributed to an event, name the object, or substance which was not selected as the source. If more than two objects, substances, other than source, are involved, select:
    - Powered or energized objects over non powered objects,
    - Moving objects over nonmoving objects,

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■ Objects actively contributing to the event over passive objects.

(Source: http://www.cdc.gov/oiics/Trees/Source.aspx).

20. Type in How did the accident occurred box in narrative text and input the important information that is not available in previous items. Do not leave the box empty or without any narrative text.

21. Choose Did Employee Died: if yes click "Yes" button, and if not click "No" button.

22. Fill the Hours worked since last day off with number, if the information not available, fill with zero = 0.

23. Fill the Overtime hours worked since last day off with number, if the information not available, fill with zero = 0.

24. Fill Prevention measure type with text and do not leave the box empty.

25. After finish fill all the items then click submit.

26. All information will be saved on master database.

Edit Information

Editor menu is for adding new information in report fields if the information is not currently available. Fields are "accident classification", "task", "company size", "working experience", "cause of accident", and "source of injury". If the inspector adds new information in the fields, then it will be sent and saved directly to the master database.

Search Function

Search function placed in the *Main Menu*. Search function is applied for searching information with a key word, as an example:

If inspector wants search source of injury-overhead, type "overhead" in quick search box, afterwards, choose "Source of injury" in the next table, then click "Enter/Ok". Eventually, all accident caused by overhead will appear.

									Accident Happened									
Case ID	Date of event	Weather	Temperature (^{0}C)	Injury event	Employee ID	Company	Constructi on Task	Electrical Task	Place of accident	Cause fatal electrocuti on	Cause fatal fall	Source of Injury	Secondary tool	How happened	died	prevention	Inspector	Date of report
1	6/26/2010	Rain short duration	25	Fatality	A1	RRR	-	Installing, moving, repairing, utility pole and power line	Building A	Personal protective equipment had not being used	-	Over head	-	Electrocution while fixing high voltage fuse-chain switch at secondary transformer. Not using PPE, and touch 11.4 KV high voltage wire without sleeves and blanket located 135cm above.	Y	Use PPE	Emmi	6/27/2010
2	6/26/2010	High wind and rain together	23	Fatality	B3	XXX	-	Material handling	Building B	Fail to maintain distance	-	overhead	Metal material, non structural	Indirect electrocution while lifting 6 meter long, 3Kg aluminum bar from 2nd to the 4th floor and accidentally touch the overhead 11.4 KV wire without maintaining safe distance.	Y	Be careful	Iwan	6/28/2010

Quick Search 🔍 — Overhead Wire — Source of Injury ⇩ Clear

Overhead — Page ⇦ 1 of 23 ⇨

Figure 4.17 Example of search function

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Analysis Accident Report

Analysis used in accident report is Cross Tabulation analysis. Thereby, inspector will know how many accident(s) happened because of two elements, i.e. how many accident(s) happened in a company which has male or female and ages are <24 years, 24-34 years, 34-44 years, 45-54 years, >55years.

Figure 4.18 Example of cross tabulation

In this research, Cross tabulation is only for some data, those are: Gender and Age, Task and Accident Classification, Company Size and Accident Classification

4.2.   Verifying Accident Information System with Industry Cases

Thirty electrical fatality cases from construction industry will be included in the database to test out the program.

1.   Input cases with a program. Read the narrative cases carefully and find the key words to fill the accident form. As an example for *task when accident occurred*, and it should be select whether *Electrical* or *Construction* task, then select the *specific task* that suitable to the case. Besides, this procedure applies for other items.

2.   If there is no information in program which is suitable for the case, inspector inputs new information in the column and then directly saved in *phpmyadmin- Accident database* in appropriate table.

3.   Check whether the case directly input to master database in *phpmyadmin-Accident database*. Check in "*Cases" table*, "*Employee" table* and "*Company" table*. Because when inspector input new case, it should have

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new number of employee in *Employee* table or the victim and new number of company in *Company* table.

4.   "Search" function. As mentioned in previous "Search Function" explanation and Figure 4.17 Search function, "Search function" works if inspector needs to find accident data with specific categories.

5.   Changeable program. A Simplified Chinese version of the Manual, current for MySQL 5.1.12, can be found at http://dev.mysql.com/doc/.