

# The Construction of Road Accident Analysis and Database System in Malaysia

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**4<sup>th</sup> IRTAD CONFERENCE**

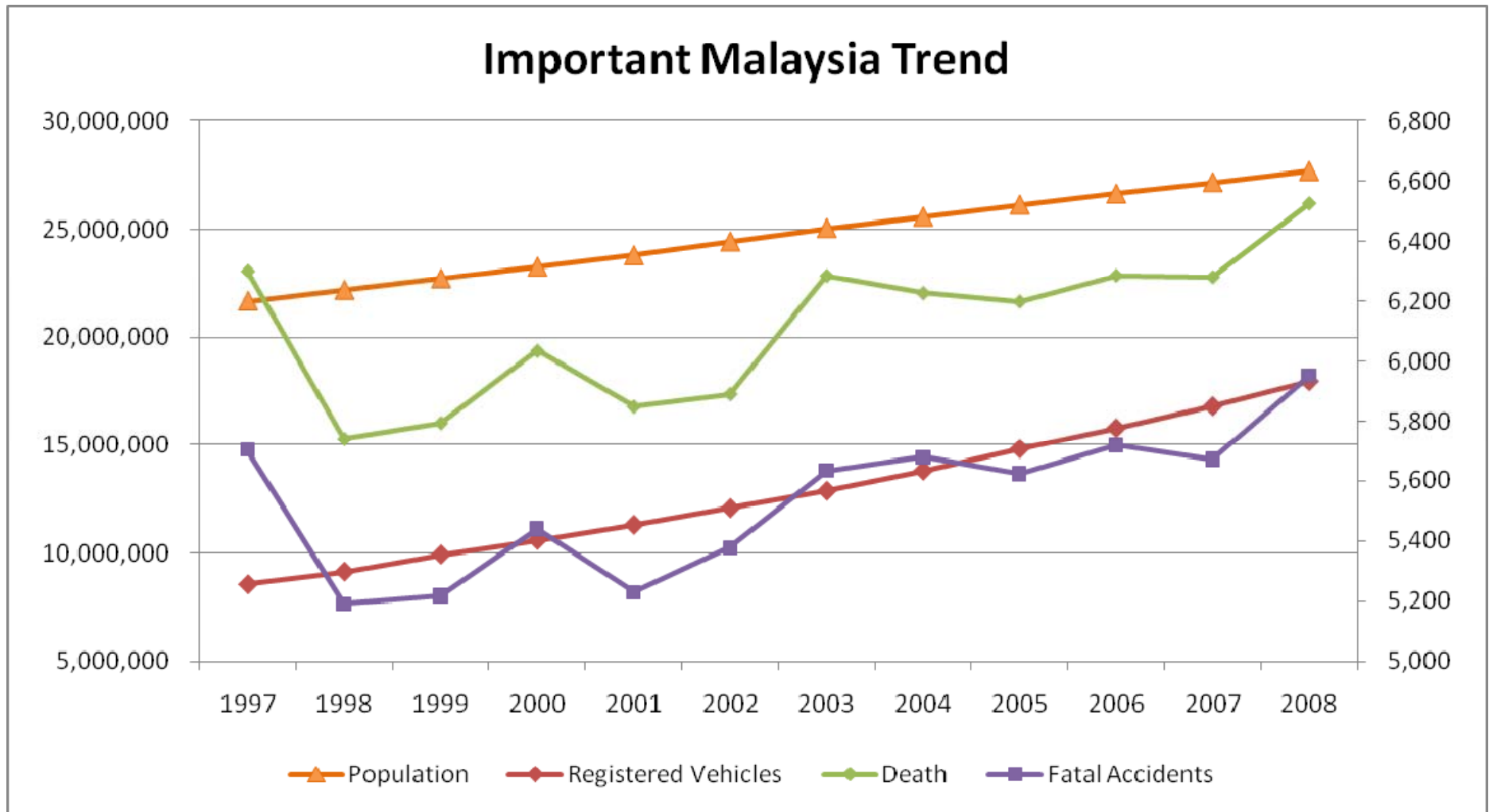
***Road safety data: collection and analysis  
for target setting and monitoring performances and progress***

**Seoul, 16-17 September 2009**

# ***Content***

- Road safety situation in Malaysia
- Accident data collection
- Accident data recording system
- Problem with the current data system
- System development
- Results
- Applications

# ***Situation in Malaysia***



# ***Accident data collection***

- Accident data collected by traffic police
- Collection through Police Form 27 (POL.27)
- 91 variables are collected consisting information on:-
  - General accident information
  - Vehicle information
  - Driver information
  - Passenger information
  - Pedestrian information
  - Animal involved information
  - Location information

# ***POL27 form***

[illegible]

**KERTAKAN I**

NAMA KEMALANGAN DARI  
NEDEAAN

Buat  
Cetakan Peta  
Kerangka Titi Belayar

**SALINAN ASAL.**

**ERASAN**

Pada jam 2030, 29/1/91, M/Sinar NAC 6419 berlayar menuju ke Tampin. Apabila sampai di KM 6, Rimpia T telah berlayar dgn M/Ekal NY8762 kedua-duanya dalam keadaan normal.

**G. Coordinates / Node**

LAKSANA BERJAJARAN KEMALANGAN (Tentukan jenis jalan, arah perjalanan, kedudukan objek terhadap dan antara)

The diagram shows a horizontal line representing a river or waterway. On the left side, there are three vertical lines representing a bridge or a narrow channel. A ship labeled 'M/Sinar NAC 6419' is shown moving from left to right towards a point labeled 'NY8762'. The word 'Beremban' is written below the left side of the line, and 'Tampin' is written below the right side. An arrow points from the collision point towards 'Tampin'.

**H. Collision Diagram**

LAKSANA LORENG KEMALANGAN (Perhatikan kedudukan dan jarak bersempitan terhadap dengan perantara, jika tidak, tempatkan dan buat dua muka paku.)

The diagram shows a horizontal line representing a river or waterway. On the left side, there is a point labeled 'Beremban'. A distance of '6km' is marked along the line towards a point labeled 'Ladang Pandi'. From 'Ladang Pandi', an arrow points upwards to a label 'Lokasi kemalangan'. The word 'Tampin' is written at the far right end of the line.

# ***Accident recording system***

- 1991 – Microcomputer Accident Analysis Package (MAAP)
  - DOS-based
  - Capable of handling medium amount of records
  - Data management and cross-tabulation analysis
- 2006 till Present – Computerised Accident Reporting System (CARS)
  - Data management as well as personnel management
  - Limited variables for cross-tabulation analysis
  - District based and are not centralised

# ***Current data system***

- No hard and fast rule on data quality and entry
- Compiled by national police headquarters quarterly every year
- Basic functions
  - Record management
  - General statistics
- Accident data as record keeping
- Abundance of accident data available but are not fully analyzed for road safety intelligence

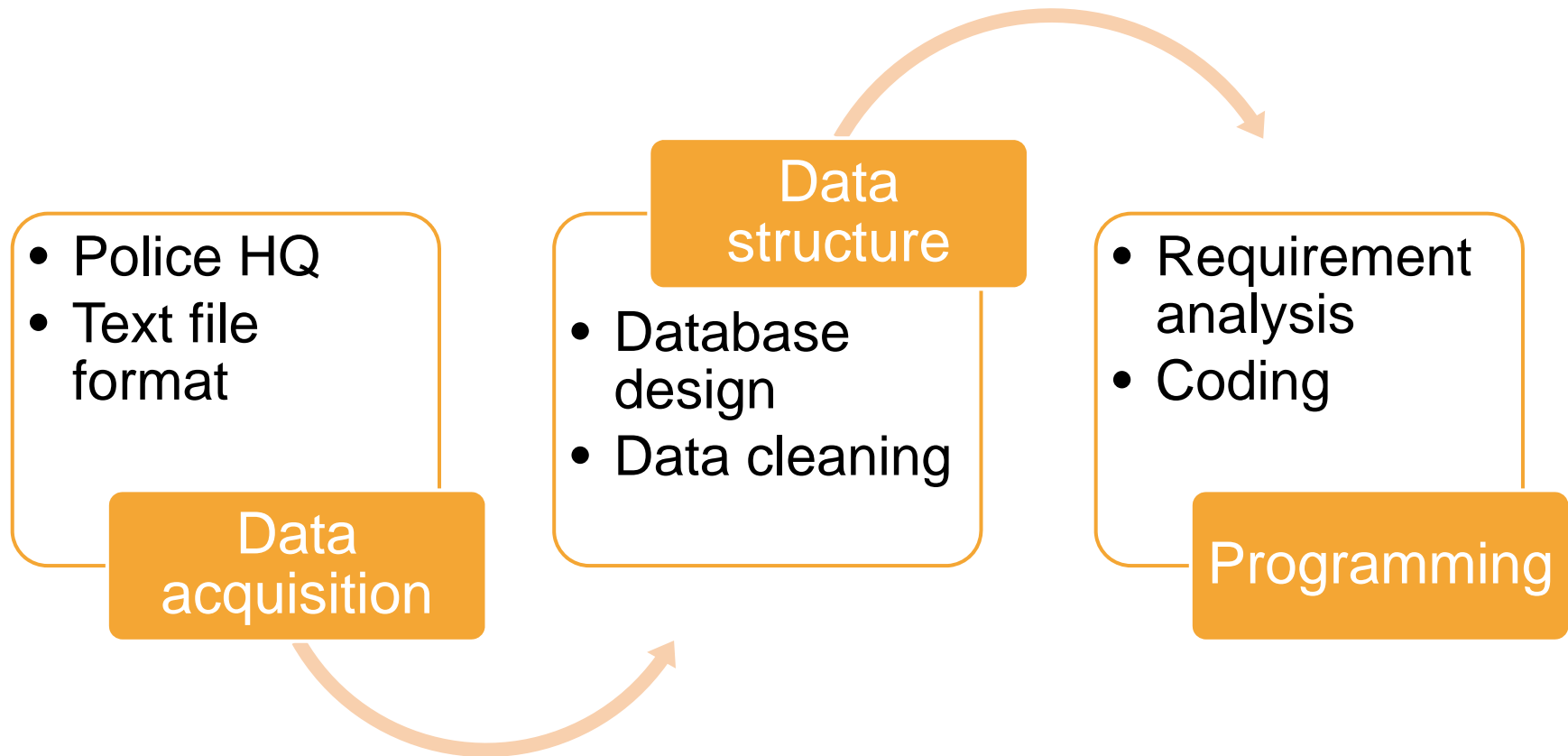


# ***Objective and scope***

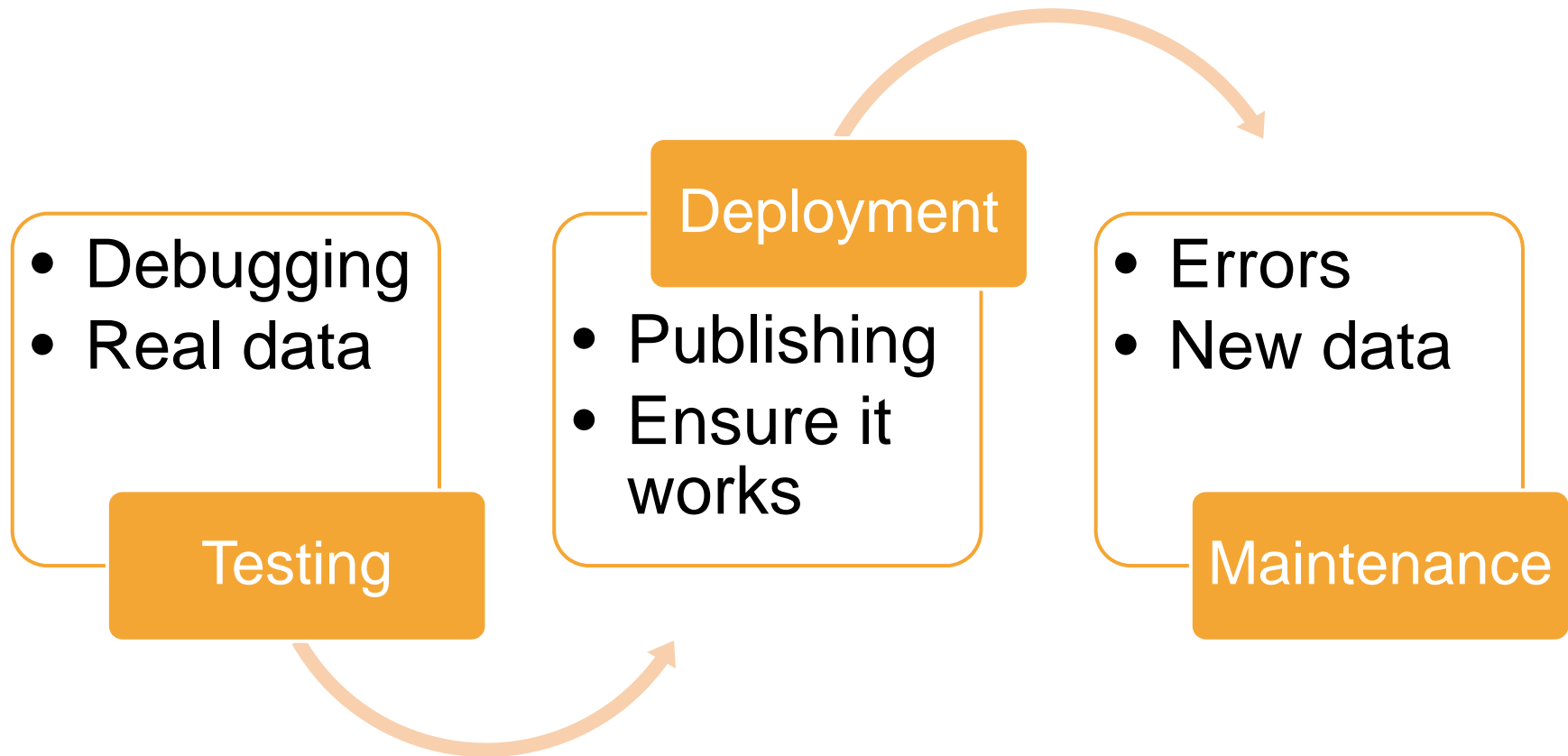
- To provide government and road safety stakeholders with accurate, continuous and comprehensive information on road crashes
- To increase understanding of the current road safety situation, to plan for appropriate responses and policy, and to evaluate the impact of current and future initiatives
- Only road accident data is included in the system development



# *Development*



# *Development*





# ***Results***

- M** Management (DB and user)
- R** Record maintenance
- O** Cross tabulation
- A** Accident location ranking
- D** Data converter
- S** Set condition

# Results

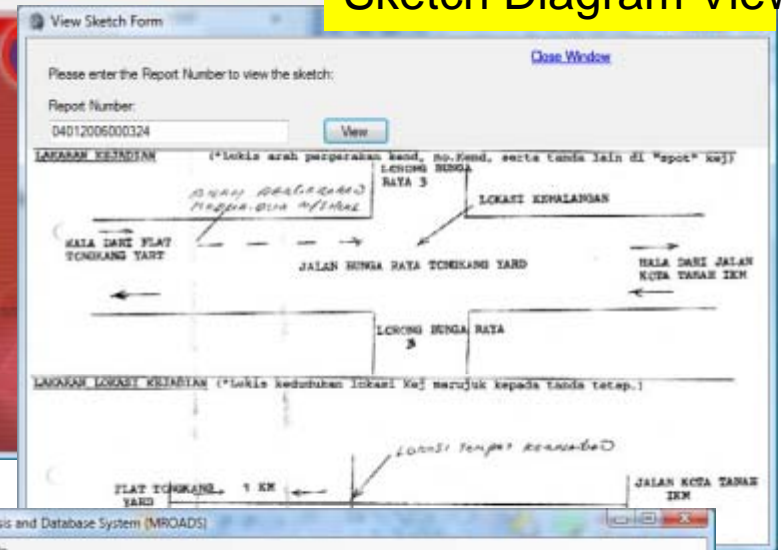
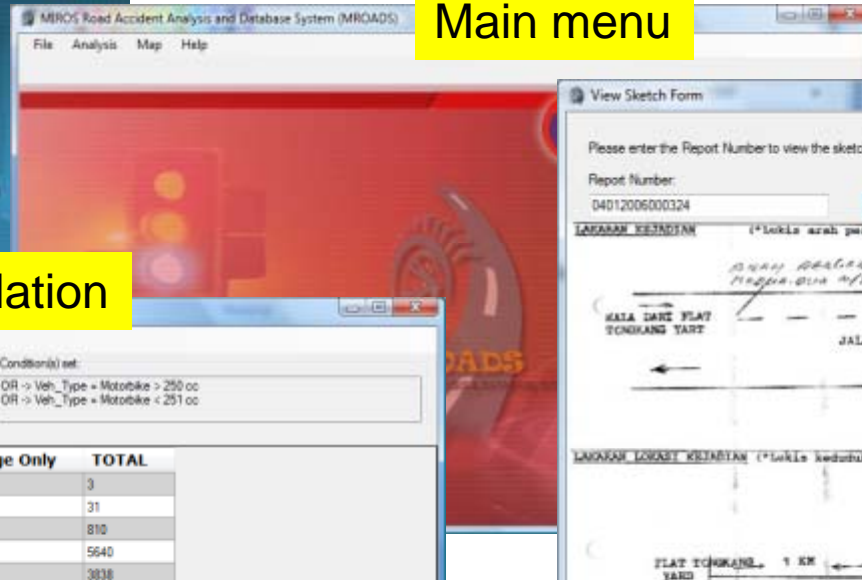
Main menu

Sketch Diagram View

Cross-tabulation

Graph Output

Ranking



MIROS Road Accident Analysis and Database System (MROADS)

File Analysis Map Help

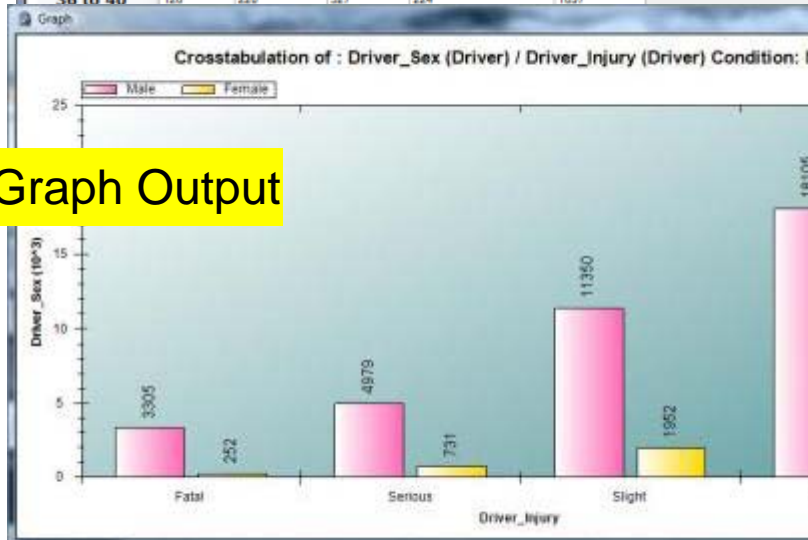
Crosstabulation

Crosstabulation of : Driver\_Age (Driver) / Driver\_Injury (Driver)

Condition(s) set:

OR -> Veh\_Type = Motorcycle > 250 cc  
OR -> Veh\_Type = Motorcycle < 251 cc

	Fatal	Severe	Slight	Damage Only	TOTAL
1 to 5	0	0	2	1	3
6 to 10	0	6	24	1	31
11 to 15	93	239	323	155	810
16 to 20	542	1270	2751	1077	5640
21 to 25	410	765	1938	725	3838
26 to 30	191	367	815	319	1692
31 to 35	133	225	555	227	1140
36 to 40	126	220	527	224	1097



MIROS Road Accident Analysis and Database System (MROADS)

File Analysis Map Help

Condition(s) set:

AND -> State = Perak

	Fatal	Hospitalize	Slight	Damage	State	Score
A0190	2	9	15	19	16	97
A0102	2	8	9	35	16	97
Z0011	17	13	31	725	16	941
Z1113	0	0	0	94	16	94
Z0018	0	3	19	43	16	93
Z010	0	0	2	5	16	9
A0179	0	1	0	5	16	9
Z0927	0	0	0	9	16	9
Z1909	0	0	0	9	16	9
A0167	1	0	1	1	16	9
Z0082	0	0	0	9	16	9
Z1203	1	0	0	3	16	9
09	0	1	0	5	16	9
Z0127	0	0	0	9	16	9
16	1	0	1	1	16	9
A0214	0	0	0	9	16	9
A0133	1	0	1	1	16	9
A180	0	0	1	7	16	9

User maintenance

Add a new user :

Username : userA  
Host : %  
Password :  
Retype password :

Resource Limits  
Max Queries Per Hour : 0  
Max Updates Per Hour : 0  
Max Connections Per Hour : 0  
Max User Connections : 0

Note: Setting these options to 0 (zero) removes the limit.

Data Structure Administration  
☒ Select ☒ Create ☒ Grant  
☒ Insert ☒ Alter ☐ Super  
☒ Update ☒ Index ☒ Process  
☒ Delete ☒ Drop ☒ Reload  
☒ File ☒ Create temporary tables ☒ Shutdown  
☒ Show view ☒ Show Databases  
☒ Create routine ☒ Lock Tables  
☒ Alter routine ☒ References  
☒ Execute ☒ Replication client  
☒ Replication slave  
☒ Create user

Add Clear Cancel

# Results

Convert data

Upload data to database

Select database: accidentdata2006

Source file location:

C:\Users\Hizal\Documents\database bd\KLT.V  
C:\Users\Hizal\Documents\database bd\KLT.V  
C:\Users\Hizal\Documents\database bd\KLT.V  
C:\Users\Hizal\Documents\database bd\KLT.V  
C:\Users\Hizal\Documents\database bd\KLT.V  
C:\Users\Hizal\Documents\database bd\KLT.V  
C:\Users\Hizal\Documents\database bd\KLT.V  
C:\Users\Hizal\Documents\database bd\KLT.V

Upload Clear Cancel

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Get directions: To here - From here  
Save to My Maps

Convert to MS Excel

MIROS Road Accident Analysis and Database System (MI-ROADS)

	Total	Serious	Night	Damage Only	TOTAL
Labuan	0	20	20	180	320
Kuala Lumpur	477	696	2095	33234	37026
Pekali	694	1007	2023	33173	37097
P. P. P. P.	361	380	1000	20767	23048
Kuala Lumpur	270	170	31	47830	48132
Selangor	390	1370	2317	38034	43611
N. Sembilan	307	104	149	31344	32000
Malaka	221	130	103	1433	3786
Johor	540	170	1531	4018	4177
Perak	404	301	307	11754	12366
Terengganu	270	447	696	3400	5013
Malacca	307	104	149	4464	5013
Selangor	200	200	401	12270	12871
Selangor	134	30	300	8139	8503
Perak	40	207	130	647	1176
RODAS	3700	7000	20000	280700	300700

Add New Record

Add a new record to the database

Add New Record: 294

ReportNumber	Value
State	
District Code	
Police Station Number	
Date	
Hour	
Day Of Week	
No. Veh. Involved	
No. Veh. Damaged	
No. Drivers Killed	
No. Drivers Injured	
No. Passengers Killed	
No. Passengers Injured	
No. Pedestrian Killed	
No. Pedestrian Injured	
Accident Severity	
Road Surface Type	
Traffic System	
Road Geometry	
Quality Of Surface	
Road Condition	
Lane Marking	
HR Run	

# ***Advantage of M-ROADS***

- Flexible data tabulation
  - All variables collected can be analysed
  - Specific condition
- Black-spot location ranking
  - District
  - Route no
  - Location
  - Coordinate
- Centralized database server
  - Record management



# ***Application***



Intelligence-based policing by  
traffic enforcement



Automated Enforcement System  
(AES)



Community-based program  
(CBP)




Road safety education (RSE)



# ***Future expansion***

Road Traffic Injury (RTI)  
data



Geographical data



Road engineering  
features

# ***Conclusion***

- Accident data can serve as evidence for planning on road safety programmes and interventions as well as performance monitoring
- Data management has to be done properly to support a comprehensive analysis
- Strict rule on data entry and quality to ensure accurate and consistent analysis



***Thank you***

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