

## PERSYARATAN PENGEMBANGAN DATABASE

### Pengenalan

Metodologi dalam pengembangan *software* selalunya dikaitkan dengan kerangka kerja atau *framework* kerana menggunakan pendekatan sistem informasi. Tujuan mewujudkan kerangka kerja adalah untuk membimbing pengembang dalam mengembangkan *software* tersebut. Begitu juga di dalam pengembangan database sebuah sistem diperlukan framework.

Framework dapat memperjelas aktivitas managerial (*operational control, management control dan strategic planning*) yang digabungkan dengan konsep pengambilan keputusan (*structured and unstructured*) sehingga mempermudah pengembangan sistem.

Keen dan Scott Morton telah mengidentifikasi informasi yang diperlukan dalam pengembangan database, di antaranya: *age of information, level of detail, time horizon, frequency of use, source, scope of information, dan type of information*.

Di dalam pengembangan DSS ada dua katagori persyaratan database penting yang harus diperhatikan, iaitu: institusional (keputusan yang dibuat dengan mengantisipasi berbagai faktor) dan ad Hoc (keputusan yang dibuat secara spesifik).

Karakteristik kedua kategori DSS dapat dilihat dalam gambar di bawah ini.

**TABLE 8-1** Comparison of Institutional and Ad Hoc Decision Support Systems

	Institutional DSS	Ad hoc DSS
Number of decision occurrences for a decision type	many	few
Number of decision types	few	many
Number of people making decisions of same type	many	few
Range of decisions supported	narrow	wide
Range of users supported	narrow	wide
Range of issues addressed	narrow	wide
Specific data needed known in advance	usually	rarely
Problems are recurring	usually	rarely
Importance of operational efficiency	high	low
Duration of specific type of problem being addressed	long	short
Need for rapid development	low	high

SOURCE: J. Donovan and S. Madnick, "Institutional and Ad Hoc DSS and Their Effective Use," *DATABASE*, 8, no. 3 (Winter 1977), 82.

Perbedaan persyaratan database di antara institusional dan ad hoc, adalah:

**TABLE 8-6** Database Requirements for Institutional and Ad Hoc DSS

	Institutional	Ad Hoc
Multiple sources	internal	external
Wide time frame	no relationship found	
Data reduction	extensive	minor
Varying levels of detail	many	few
Varying amounts of data	large	small
Varying degree of accuracy	high	low
Security & private databases	common	rare
Support for memories	broad	narrow
Support for relationships and views	limited	extensive
Random access	complex	simple
End-user interface	fixed	variable

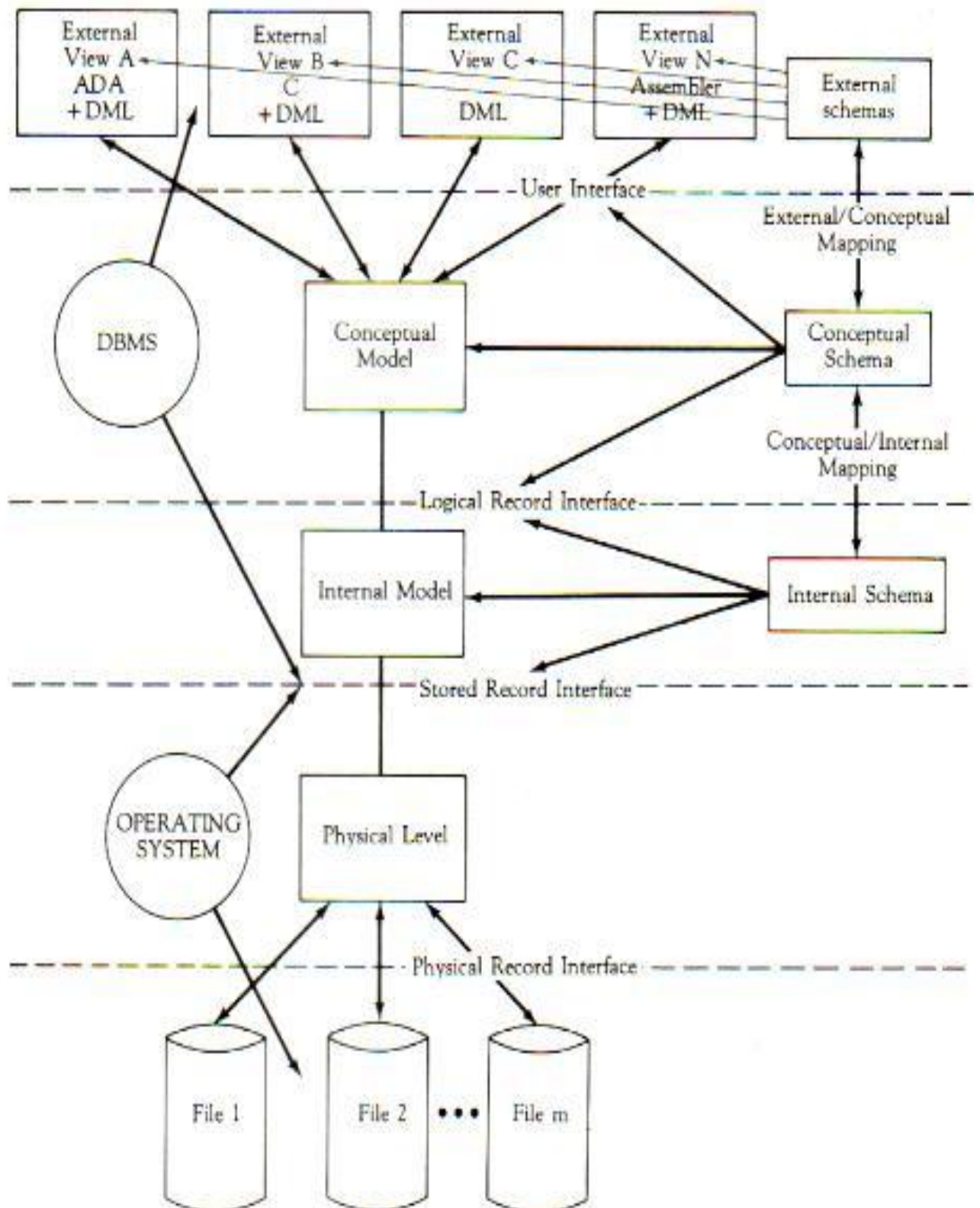
Adapun persyaratan database untuk DSS secara umum adalah sebagai berikut:

**TABLE 8-2** General Requirements for DSS Data Bases

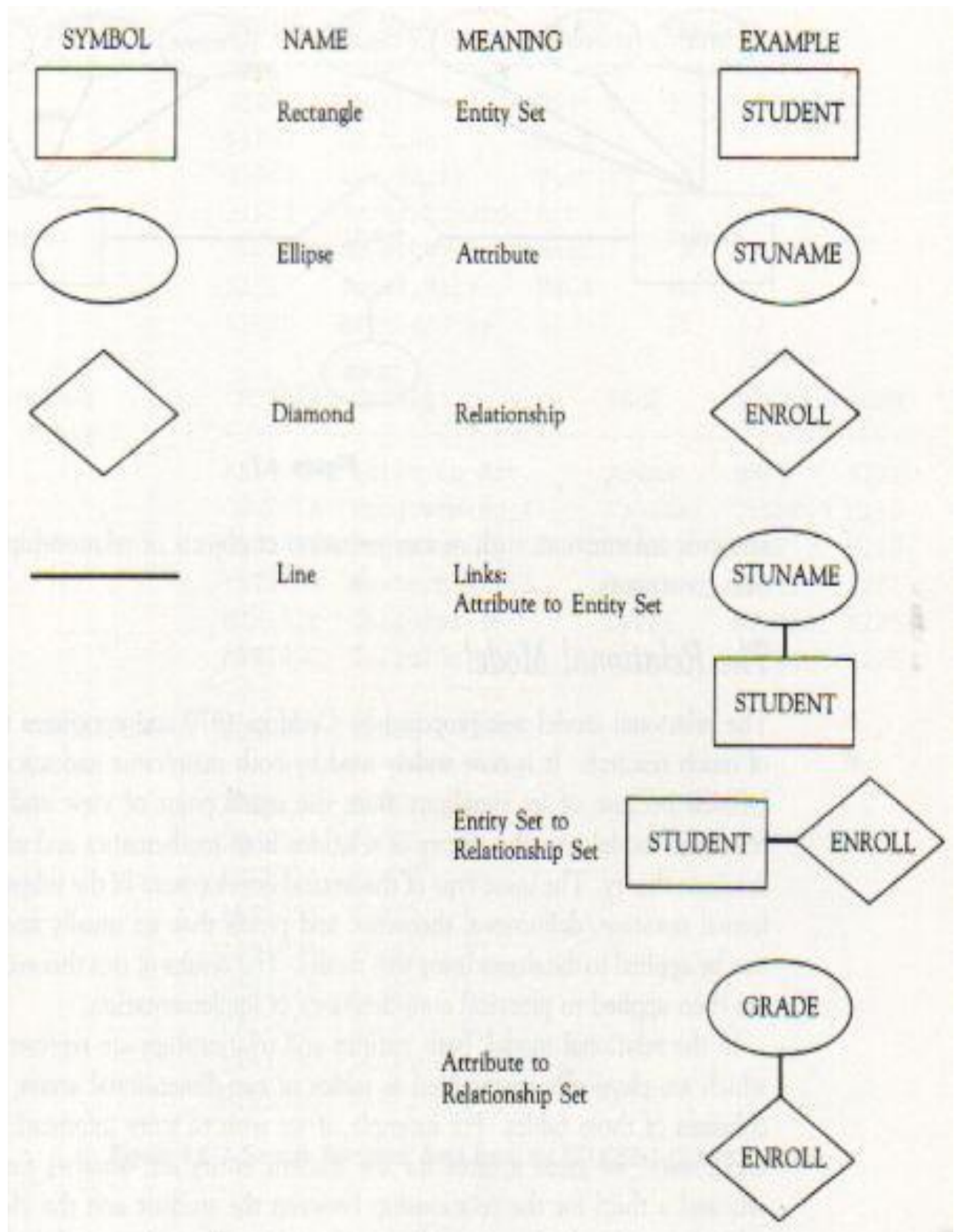
• Support for Memories	• Varying Degrees of Accuracy
• Data Reduction	• Set Operations
• Varying Levels of Detail	• Random Access
• Varying Amounts of Data	• Support for Relationships and Views
• Multiple Sources	• Performance
• Catalog of Sources	• Interface to Other DSS Components
• Wide Time Frame	• End-User Interface
• Public and Private Data Bases	

SOURCE: Ralph H. Sprague, Jr., and Eric D. Carlson. *Building Effective Decision Support Systems* (Englewood Cliffs, N.J.: Prentice Hall, 1982).

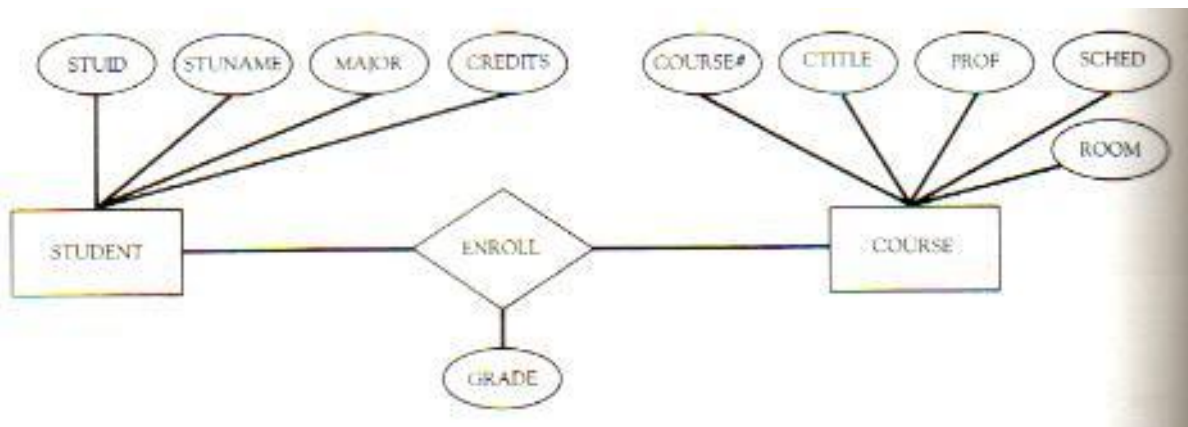
Di dalam pengembangan arsitektur database terdapat tiga level yang perlu diperhatikan, yaitu: external views, conceptual or logical model dan internal model. Gambaran ketiga level tersebut dapat dilihat dalam gambar di bawah ini.



Adapun simbol-simbol yang sering digunakan dalam pengembangan arsitektur database, diantaranya sebagai berikut;



## Contoh diagram Students-Classes



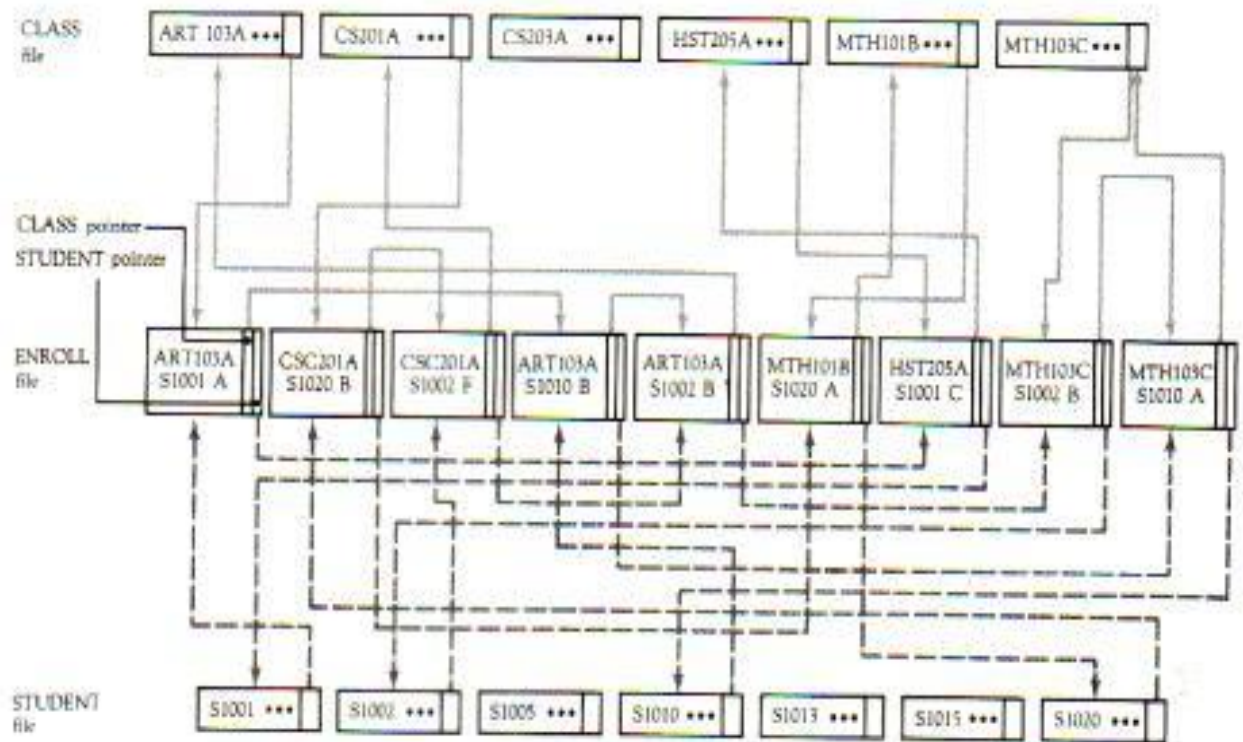
## Hubungan Database Student-Classes

STUDENT Table	STUID	STUNAME	MAJOR	CREDITS
	S1001	Smith, Tom	History	90
	S1002	Chin, Ann	Math	36
	S1005	Lee, Perry	History	3
	S1010	Burns, Edward	Art	63
	S1013	McCarthy, Owen	Math	9
	S1015	Jones, Mary	Math	42
	S1020	Rivera, Jane	CS	15

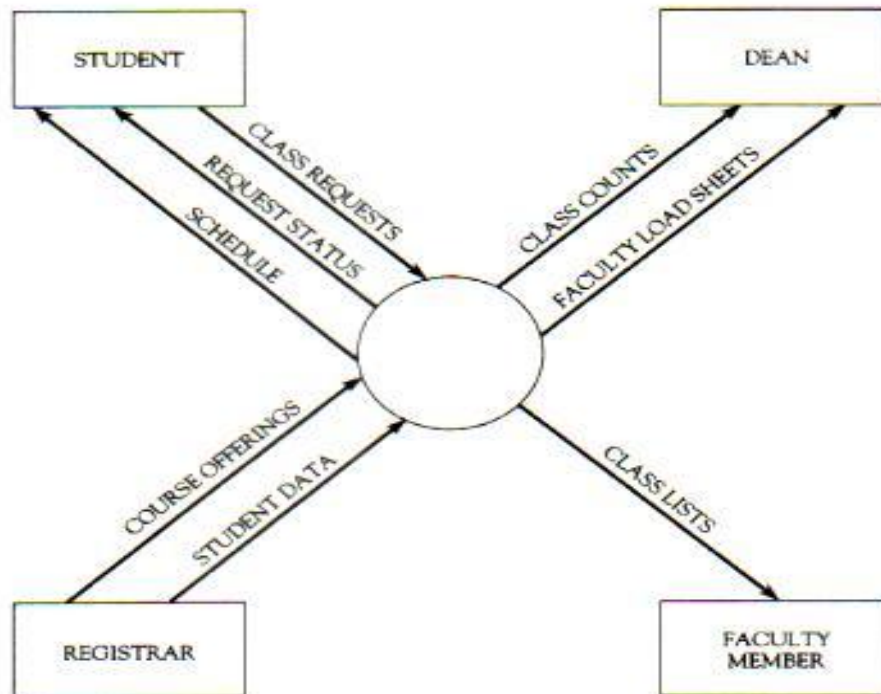
CLASS Table	COURSE#	CTITLE	PROF	SCHED	ROOM
	ART103A	Intro to Art	Adams	MWF9	H221
	CSC201A	Programming I	Tanaka	TuThF10	M110
	CSC203A	Programming II	Tanaka	MThF12	M110
	HST205A	Western Civil	Smith	MWF11	H221
	MTH101B	Calculus I	Byrne	MTuTh9	H225
	MTH103C	Calculus II	Byrne	MWF11	H225

ENROLLMENT Table	COURSE#	STUID	GRADE
	ART103A	S1001	A
	CSC201A	S1020	B
	CSC201A	S1002	F
	ART103A	S1010	B
	ART103A	S1002	A
	MTH101B	S1020	A
	HST205A	S1001	C
	MTH103C	S1010	A
	MTH103C	S1002	B

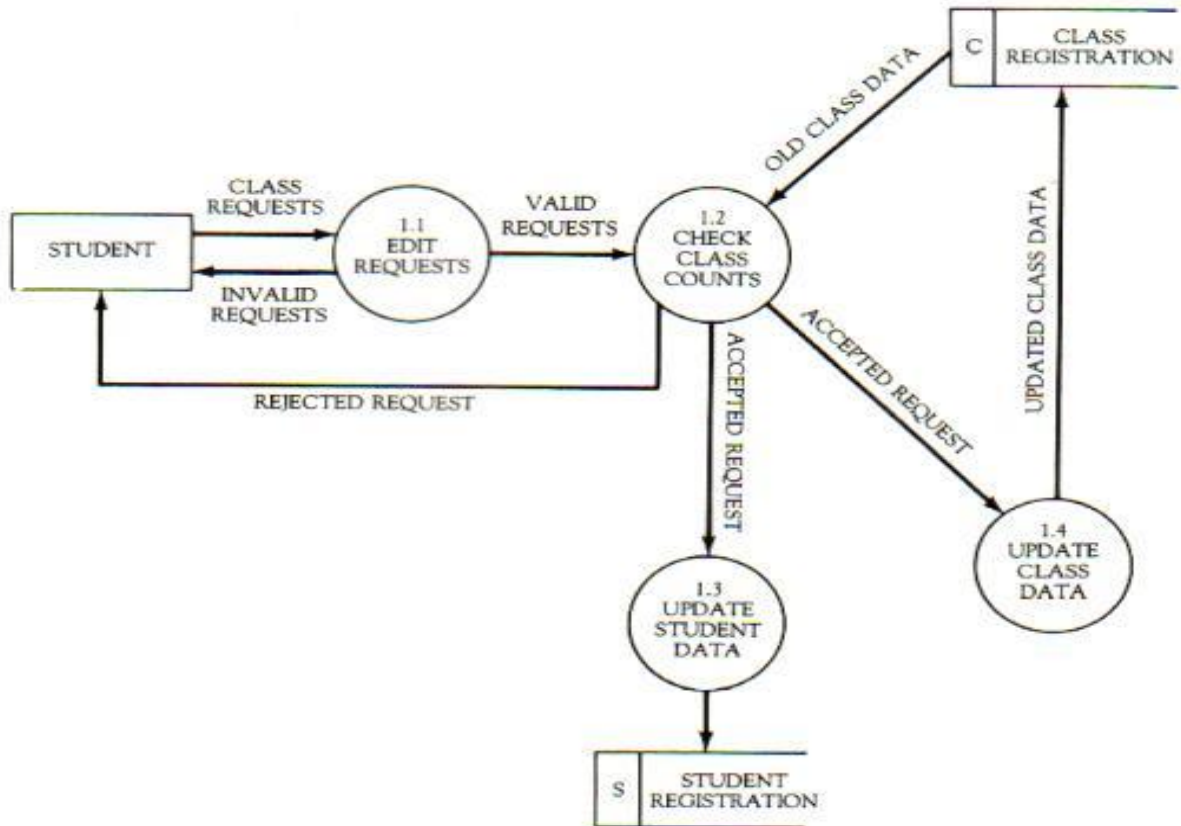
## Model Network Student-Classes



## Konteks Data Flow Diagram Student-Classes secara online



### Pendaftaran manual Student-Classes



### Pendaftaran online Student-Classes

