

Informacijski sistemi

3. faza Systemski dizajn

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Informacijski sistemi

3. faza Sistemski dizajn

Dizajn

- Podatkov
- Uporabniški vmesnik, vhod in izhod
- Systemske arhitekture

Dizajn podatkov

Podatkovne strukture

- Datotečni sistem
 - Master file, table file, transaction file, work file, security file, archive file
- DBMS upravljalni sistem baze podatkov
- Sistemske arhitekture

Dizajn podatkov – datotečni sistem

Job Records System

JOB

Job No
Work Code
Hours
Date
Mechanic No
Name
Pay Rate

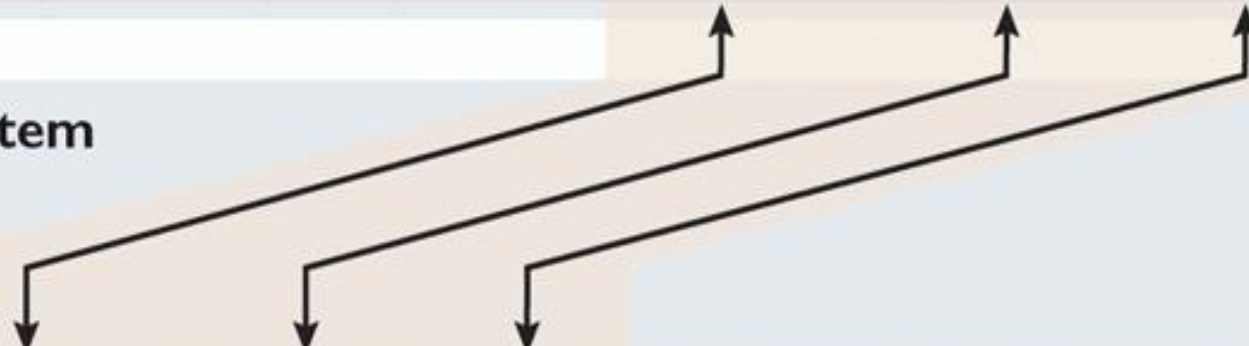
Job No	Work Code	Hours	Date	Mechanic No	Name	Pay Rate
110	BRAKES	4.0	12/5/2003	17	Jones, Jim	\$17.50
134	ALIGN	3.0	12/4/2003	23	Smith, Stacy	\$20.00
198	TUNE	3.2	12/6/2003	12	Lear, Robert	\$15.00

Employee Records System

MECHANIC

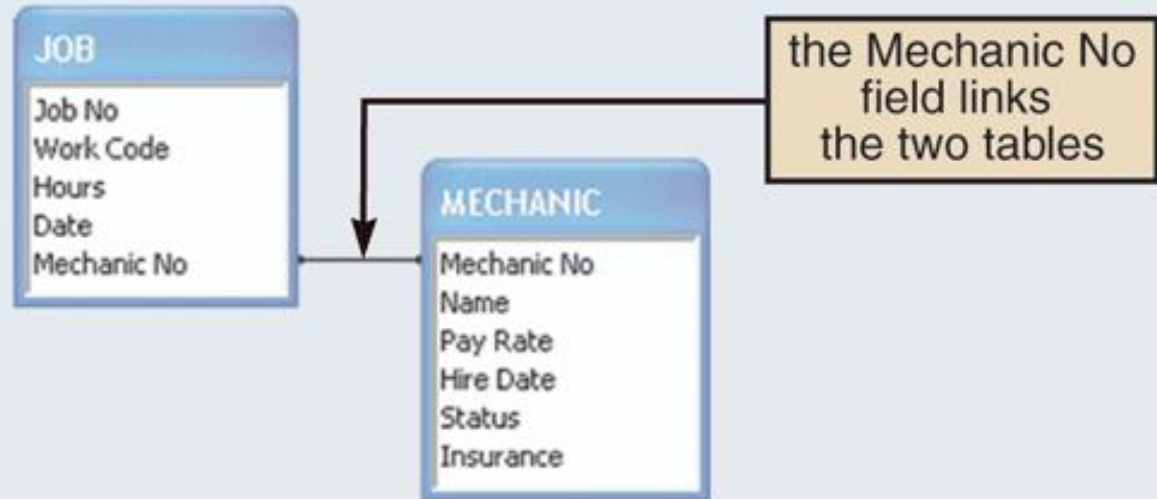
Mechanic No
Name
Pay Rate
Hire Date
Status
Insurance

Mechanic No	Name	Pay Rate	Hire Date	Status	Insurance
12	Lear, Robert	\$15.00	4/17/2000	Part-time	No
17	Jones, Jim	\$17.50	1/15/1998	Full-time	Yes
23	Smith, Stacy	\$20.00	7/1/1996	Full-time	Yes



Dizajn podatkov – dbms -tabele

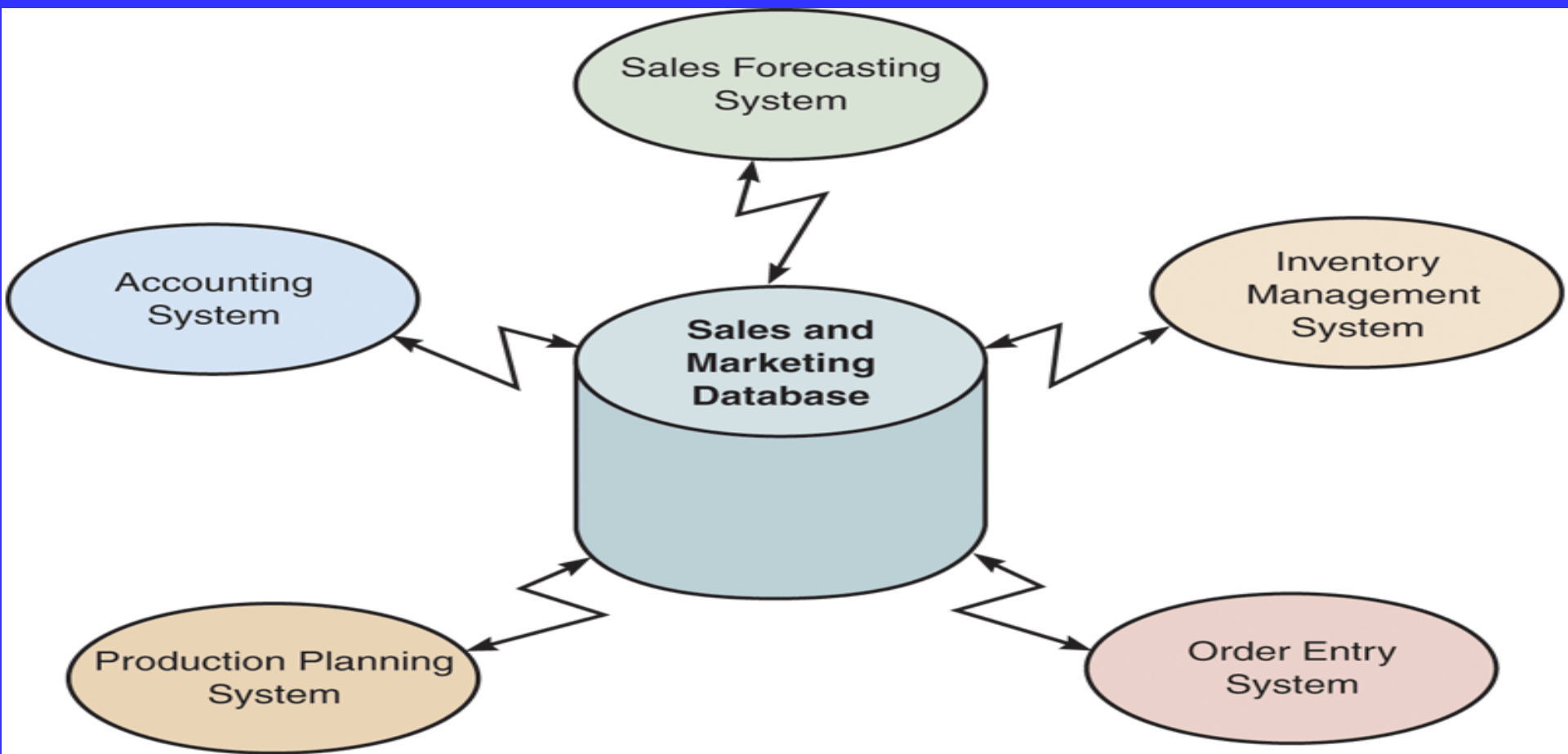
Auto Repair Database System



Job No	Work Code	Hours	Date	Mechanic No	Name	Pay Rate	Hire Date	Status	Insurance
110	BRAKES	4.0	12/5/2003	17	Jones, Jim	\$17.50	1/15/1998	Full-time	Yes
134	ALIGN	3.0	12/4/2003	23	Smith, Stacy	\$20.00	7/1/1996	Full-time	Yes
198	TUNE	3.2	12/6/2003	12	Lear, Robert	\$15.00	4/17/2000	Part-time	No

information can be accessed from either table

Dizajn podatkov – dbms



DBMS upravljalni sistem baze podatkov

- Zbirka orodij in vmesnikov, ki uporabniku omogočajo:

- Dodajanje
- Spreminjanje in brisanje
- Upravljanje
- doseg in analizo

vsebine podatkov v bazi

- Glavna značilnost: omogoča trenutni, interaktivni in fleksibilni dostop do podatkov

DBMS upravljalni sistem baze podatkov

Prednosti

- skalabilnost
- boljši suport za client/server aplikacije
- fleksibilno dodajanje dela podatkov
- Optimizacija na hardware
- Varnost podatkov – DBA administrator
- Stroga pravila – standardi (izvaja DBA)
- Kontrolirana redundanca
- Boljša varnost
- Povečana produktivnost programerjev
- Neodvisnost podatkov od aplikacij

DBMS upravljalni sistem baze podatkov

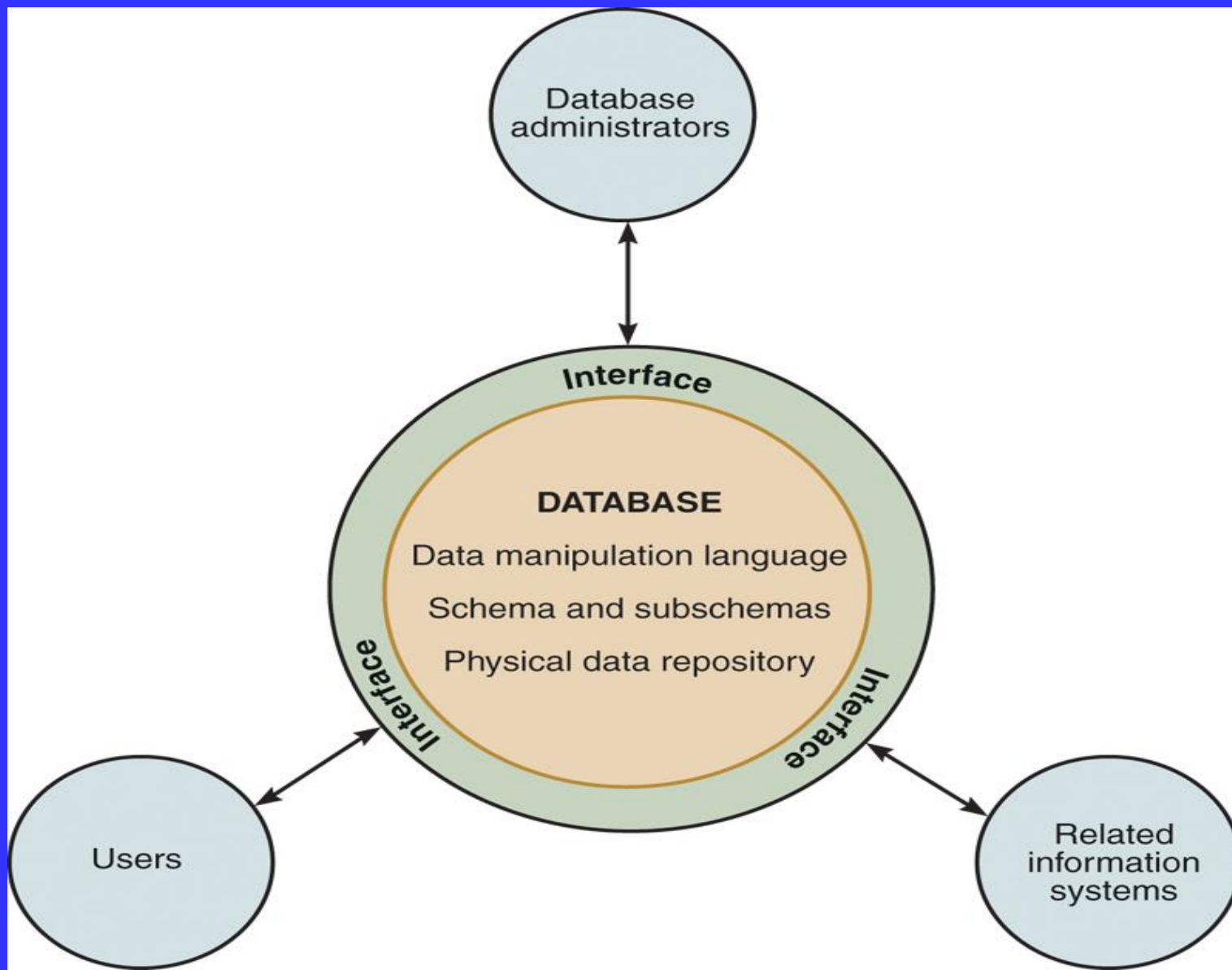
Vmesniki za uporabnike

- Query language
- Query by example
- Structure query language (SQL)

Operativni gradniki

- Data manipulation language
 - Store, retrieve, update, delete

Dizajn podatkov – dbms



Dbms - poizvedbe

QBE request

Find PT Cruisers : Select Query

PT Cruisers

- *
Vehicle Identification Number
Year
Color
Roof Rack

Field:	Vehicle Identification Number	Year	Color	Roof Rack
Table:	PT Cruisers	PT Cruisers	PT Cruisers	PT Cruisers
Sort:				
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:		"2003"	"Steel Blue Pearl"	Yes
or:		"2003"	"Black"	Yes



SQL commands

```
Find PT Cruisers : Select Query
SELECT [PT Cruisers].[Vehicle Identification Number], [PT Cruisers].Year, [PT Cruisers].Color, [PT Cruisers].[Roof Rack]
FROM [PT Cruisers]
WHERE (((([PT Cruisers].Year)="2003") AND (([PT Cruisers].Color)="Steel Blue Pearl ") AND (([PT Cruisers].[Roof Rack])=Yes))
OR ((([PT Cruisers].Year)="2003") AND (([PT Cruisers].Color)="Black") AND (([PT Cruisers].[Roof Rack])=Yes)));
```

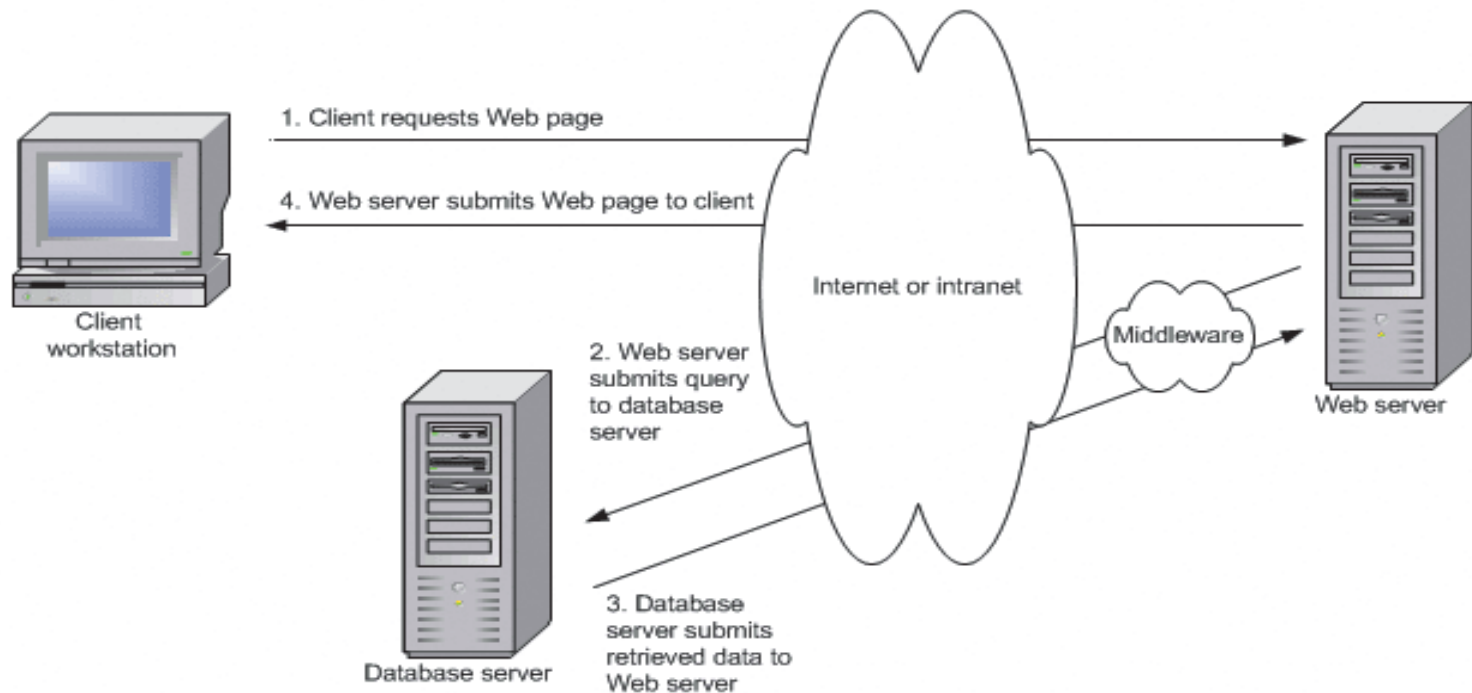
WEB Dbms

Microsoft Visio - [Web-based Database Design.vsd:Page-1]

File Edit View Insert Format Tools Shape Window Help

Type a question for help

Normal Arial 12pt. B I U



Page-1

Page 1/1

WEB Dbms security

- Varovanje web strežnika
- Komunikacije med deli sistema
- Podatkovne zbirke

Data dizajn terminologija

- Entiteta
- Tabela
- Polje
- Record (tuple)

Data dizajn terminologija

CUSTOMER Table or File

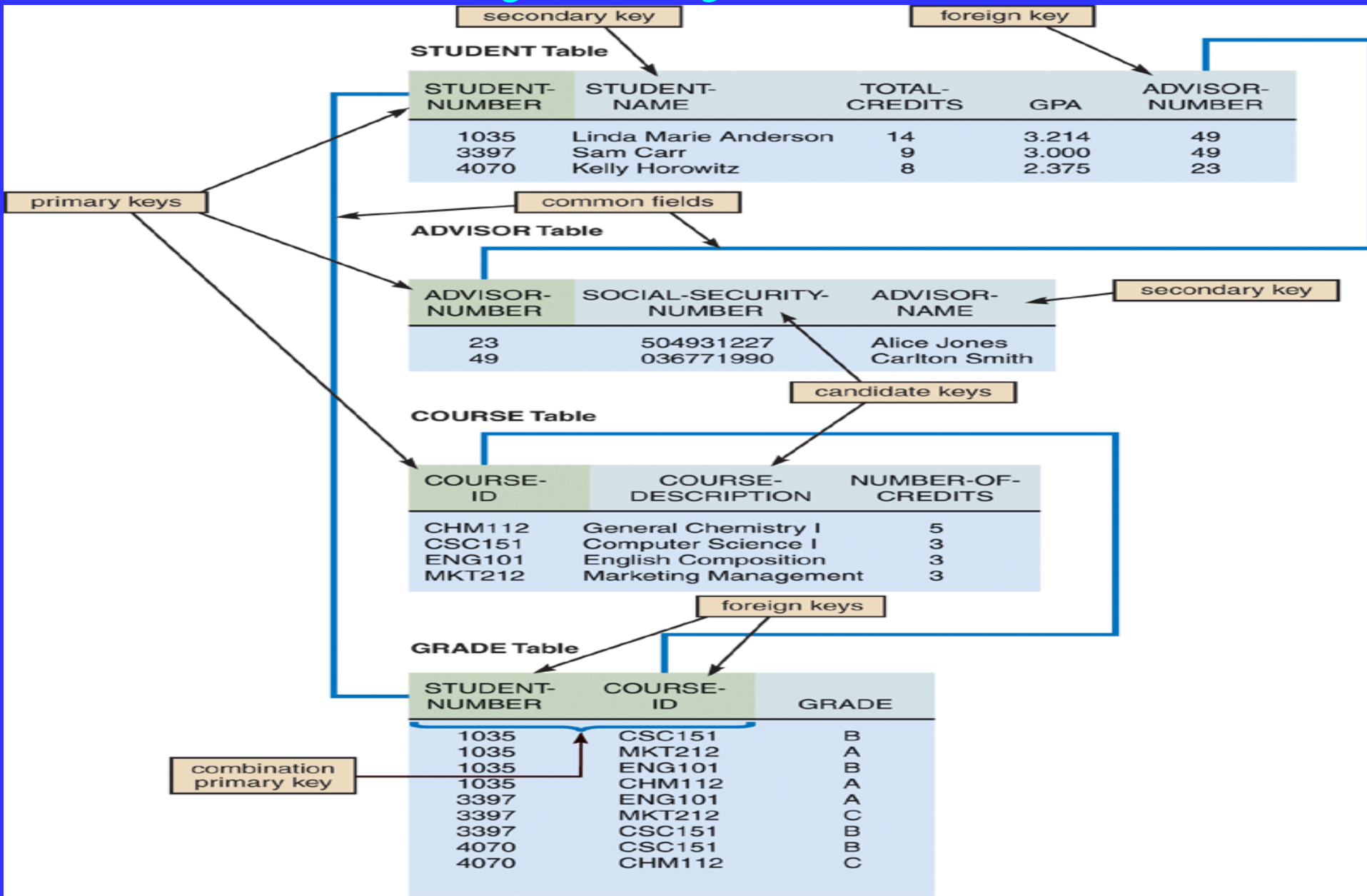
primary key

fields

MOR9117	James	Morgan	114 Elmore Avenue	Bremerton	WA	98310	jmorgan@cti.net
PIC3760	Kate	Picadilly	6 Indian Trail	Liberty	MO	64068	picadillyk@monet.com
BEL2456	Rex	Bell	PO Box 3, Route 1	Butte	MT	59701	rexbell@xyz.com

records

Data dizajn - ključiči v tabelah



Relacije med entitetami

SYMBOL	MEANING	UML REPRESENTATION
A rectangular box on the left connected to a horizontal line. The line has two short vertical bars crossing it, representing a multiplicity of one.	One and only one	1
A rectangular box on the left connected to a horizontal line. The line has a vertical bar and a triangle pointing towards the box, representing a multiplicity of one or many.	One or many	1..*
A rectangular box on the left connected to a horizontal line. The line has a triangle pointing towards the box and a circle, representing a multiplicity of zero, one, or many.	Zero, or one, or many	0..*
A rectangular box on the left connected to a horizontal line. The line has a vertical bar and a circle, representing a multiplicity of zero or one.	Zero, or one	0..1

Koraki pri dizajnu podatkovne baze

- Izdelava začetnega ERD diagrama
- Določitev atributov za tabele
- Izdelava normalizacije 3NF
- Preveri vnose v data dictionary
- Transformacija v database

Dizajn uporabniškega vmesnika

Fizični model

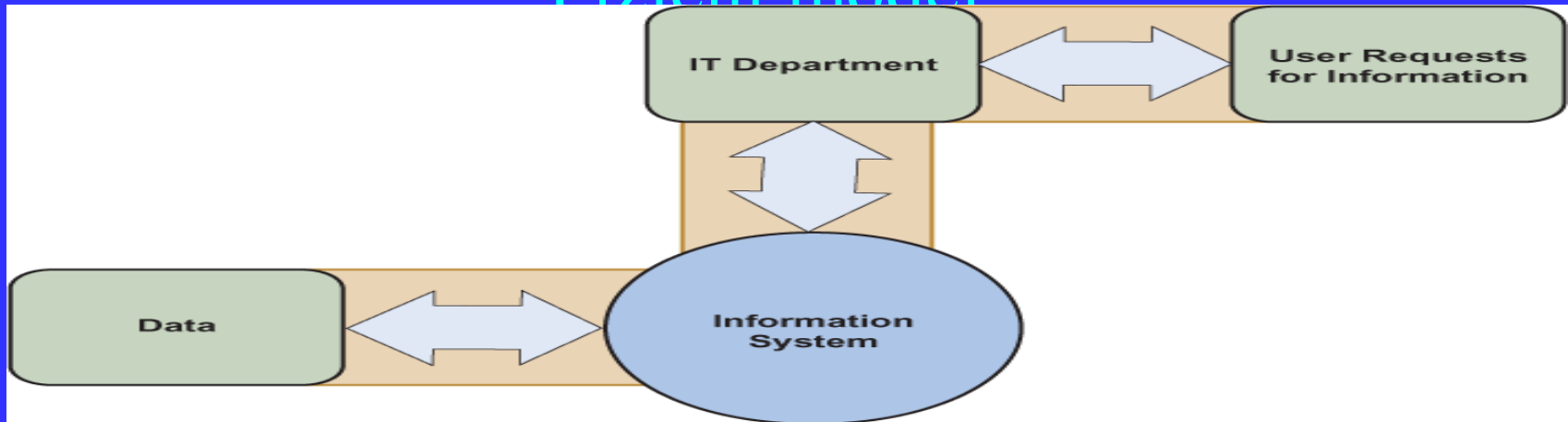
Komunikacija med uporabnikom in računalnikom

GUI – grafični uporabniški vmesnik

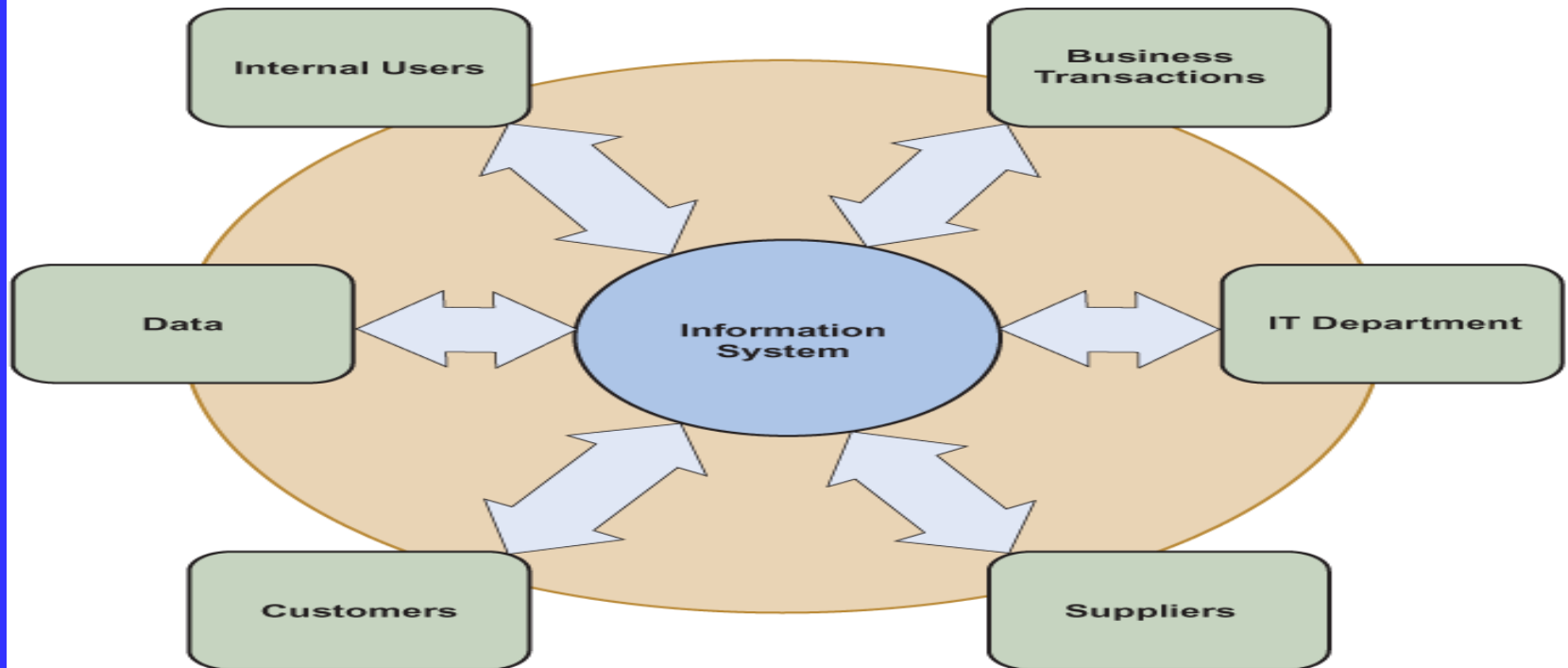
- Hardware
- Software
- Ekрани
- Menuji
- funkcije

Dizajn uporabniškega vmesnika

Fizični model



Traditional, Processing-Centered Information System Model



Modern, User-Centered Information System Model

Dizajn uporabniškega vmesnika

designing for ease of use - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites Media Mail Print

Address <http://www.ergolabs.com/design.htm> Go

Usable products do not happen by accident. Usable products are created by design. Designing computer products for use requires a development process that incorporates users' needs at every step.

Whenever a product is developed, several important stages are needed.

First, you must gather requirements. In other words, you have to know what the product is intended to do before you start building it. Gathering requirements involves defining two things:

- the end-users' needs that must be met by the product

Objectives & Requirements

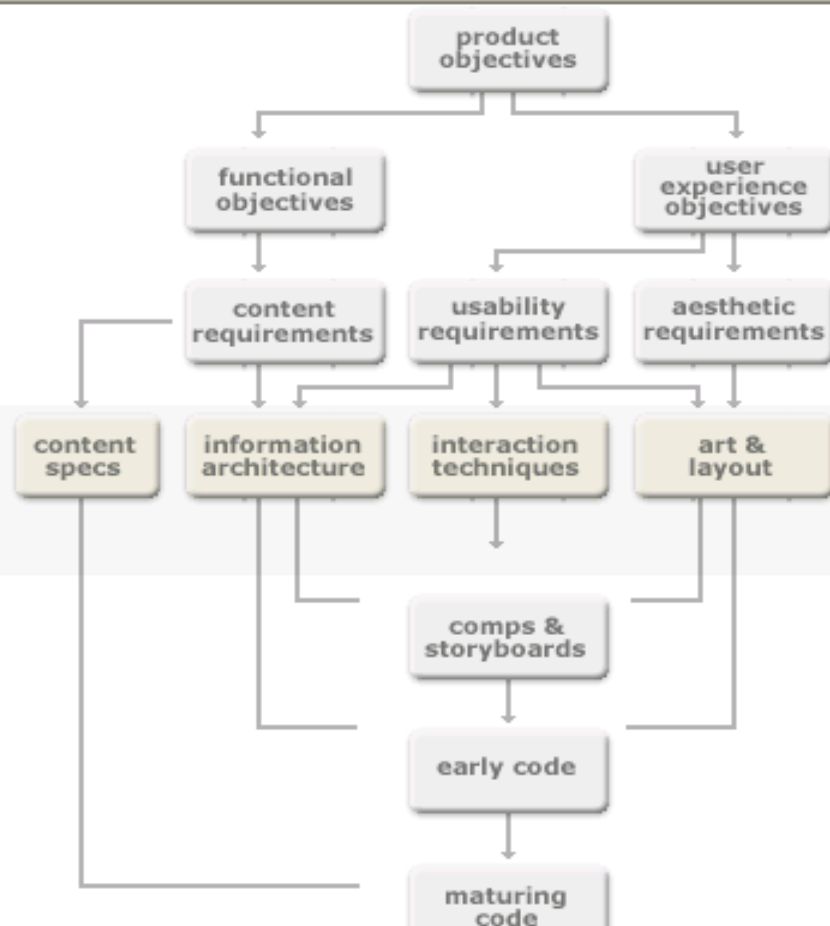
user surveys
focus groups
task analysis
contextual inquiries

Base Design

mental modeling
task analysis
kansei engineering
user interface specs
expert evaluation

Detailed Design & Testing

usability testing
heuristic evaluation



Error on page.

Internet

start

designing for ease of ...

7:06 PM

Dizajn uporabniškega vmesnika

Napotki

- Osredotočenje na funkcionalnost
- Vmesnik lahek za razumevanje in rabo
- Poudarek na uspešnosti in učinkovitosti
- Lahko odpravljanje napak pri uporabi
- Čimmanj problemov pri vnosu podatkov
- Zagotoviti feedback za uporabnika
- Atraktiven izgled in dizajn
- Uporaba domačih izrazov in slik

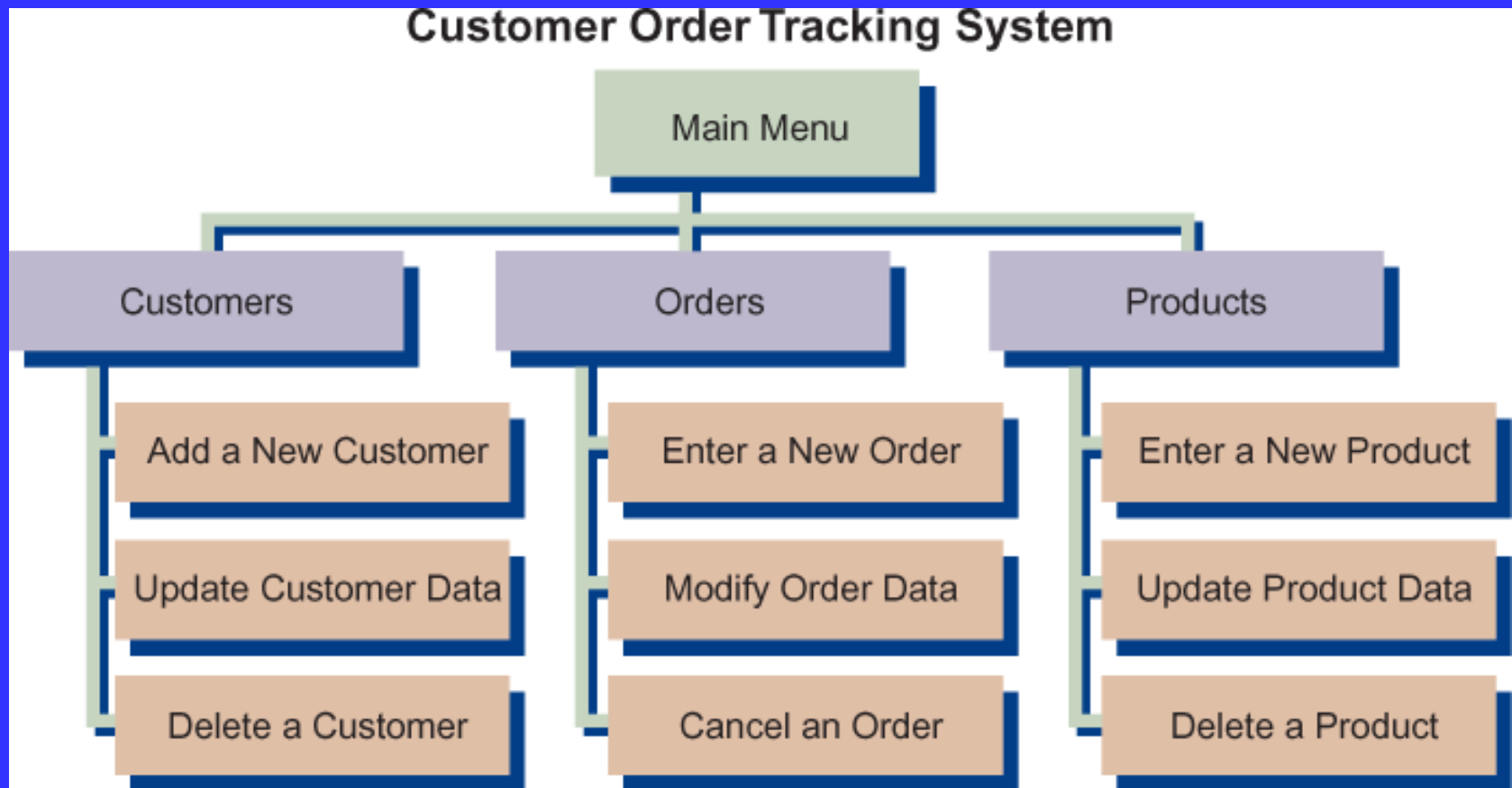
Dizajn uporabniškega vmesnika

Napotki

- Izdelava strukturnih menujev
- On line navodila in pomoč
- Javljanje napak – kako nadaljevati
- Peščene ure ali časovna opozorila
- Izdelava alertov / barvna in utripajoča opozorila pri večjih napakah ali opozorilih

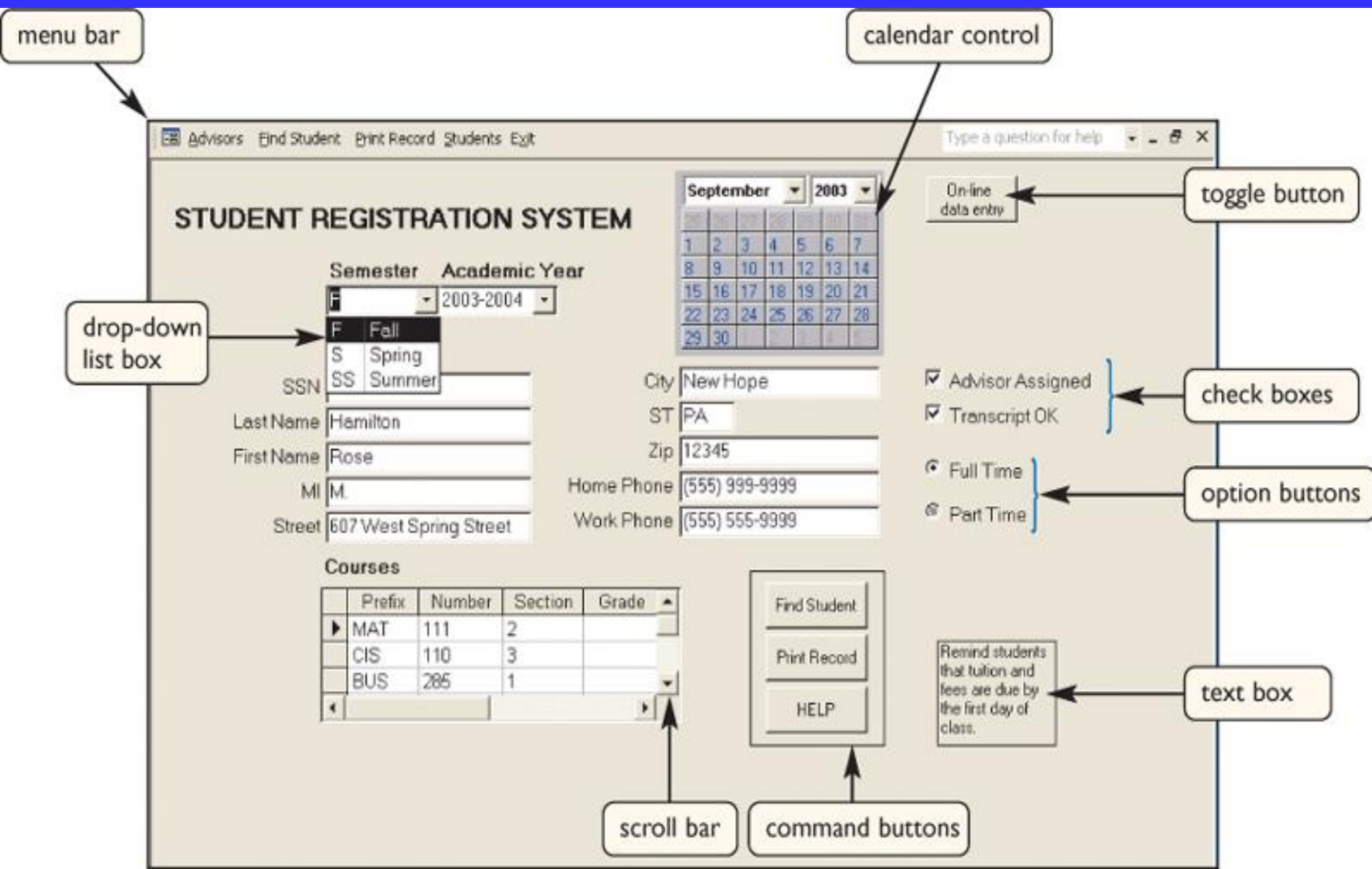
Dizajn uporabniškega vmesnika

strukturni izbor funkcij



Dizajn uporabniškega vmesnika

Vhodna maska



Metode za vnos podatkov

- Batch – paketni vnos
 - Vodilni rekord s seštevki (batch in hash total)
- On-line zajem
 - On line zajem – ročno
 - Avtomatski zajem izvornih podatkov
 - Magnetni zapisi – kartice; ATM terminali
 - POS terminali (point of sale) - blagajne

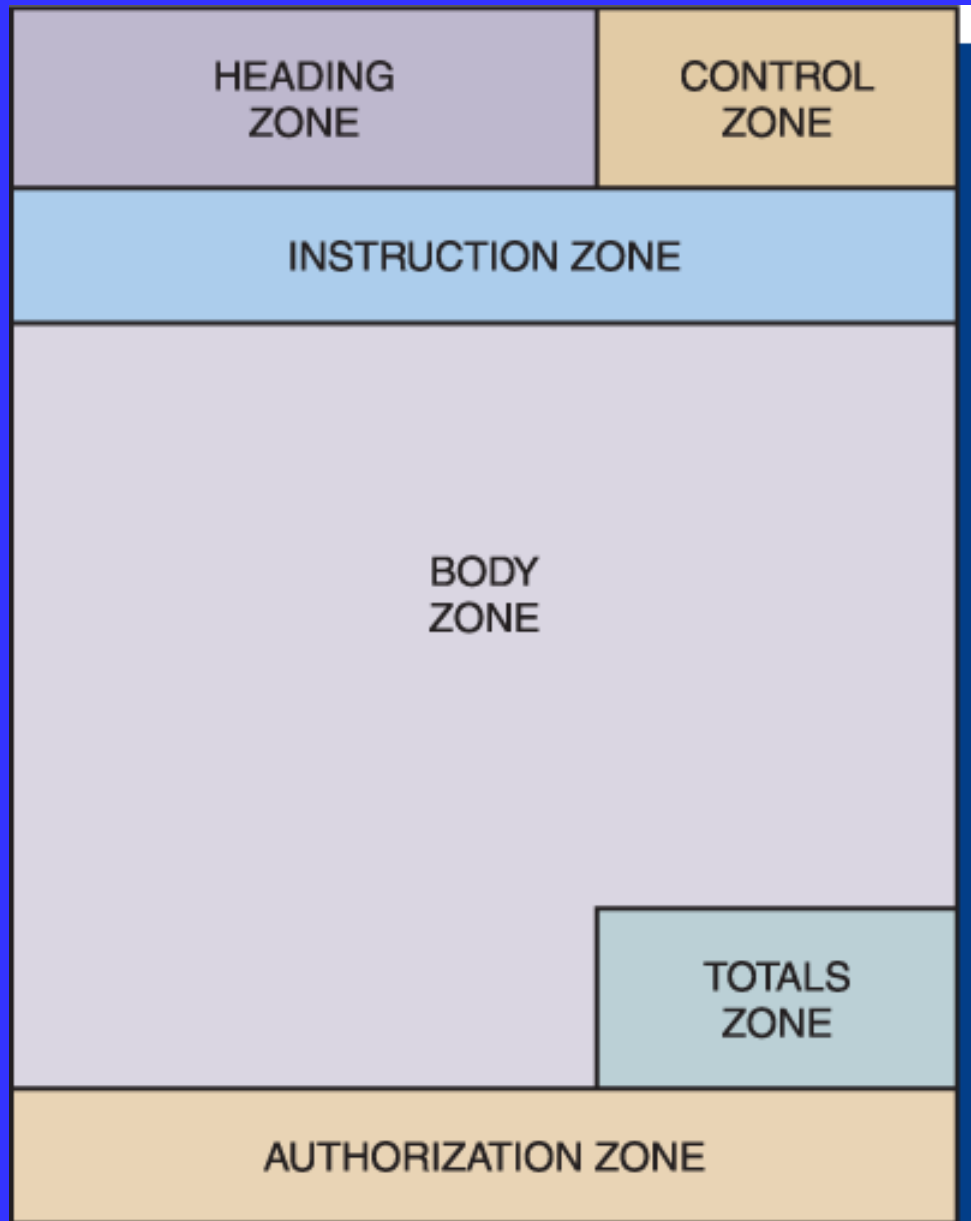
Pravila za kontrole

- Pozicioniranje kurzorja po vnosnih poljih
- Omejitev vnosnega polja
- Prikaz formata za vnos (pri datumu)
- Zaključek vnosa z enter ali dalje pri polnem polju
- Vodilne ničle - prepoved vnosa
- Default value – samo potrditev
- Lista vrednosti – kontrola
- Vrstni red polj in dizajn forme mora biti usklajen z dokumentom
- Funkcije za zapis: dodaj, briši, najdi in prikaži, spremeni
- Funkcije za prikaz dodatnih informacij - najdi

Kontrole za pravilnost podatka

- Sequence check – zaporedje
- Existence check – polno polje primerne vrednosti
- Data type check – tip podatka
- Range check – med min. in max. Vrednostjo
- Reasonableness check – razumna vrednost
- Validity check - obstoj v šifrantu
- Batch in hash total – kontrola sum v paketih

Dizajn izvornih dokumentov



Dizajn izvornih dokumentov

- Heading– glava: LOGO, ime firme, ime dokumenta
- Control: oznake za arhive in datum
- Instruction: navodila za vpis podatkov
- Body – telo: vnos podatkov
- Totals: seštevek, če je potreben
- Authorization. Podpis in datum

Output dizajn

- Kaj je namen ?
- Kdo hoče informacijo, zakaj jo rabi, kako jo bo uporabil ?
- Katere specifične informacije naj bodo vključene?
- Bo output na ekran, printer ali oboje ?
- Kdaj se bo izpis izvršil in kako često se bo osveževal ?
- Ali je dokument zaupen ?

Output dizajn – tipi outputov

- Audio
- Avtomatski fax
- COM mikrofilm
- CD
- E-mail
- Internet
- Ostale naprave
- Printer
- ekran

Output dizajn – tipi reportov

- Detajlni report
- Exception report (izjeme)
- Sumarni report

Output dizajn – struktura

identifying fields		EMPLOYEE HOURS WEEK ENDING DATE: 6/27/03				hours fields	
STORE NUMBER	EMPLOYEE NAME	POSITION	REGULAR HOURS	OVERTIME HOURS	TOTAL HOURS	report header	page header
8	Andres, Marguerite	Clerk	20.0	0.0	20.0	group footer	
8	Bogema, Michelle	Clerk	12.5	0.0	12.5		
8	Davenport, Kim	Asst Mgr	40.0	5.0	45.0		
8	Lemka, Susan	Clerk	32.7	0.0	32.7		
8	Ramirez, Rudy	Manager	40.0	8.5	48.5		
8	Ullery, Ruth	Clerk	20.0	0.0	20.0		
STORE 8 TOTALS:			165.2	13.5	178.7		
17	De Martini, Jennifer	Clerk	40.0	8.4	48.4	report footer	
17	Haff, Lisa	Manager	40.0	0.0	40.0		
17	Rittenbery, Sandra	Clerk	40.0	11.0	51.0		
17	Wyer, Elizabeth	Clerk	20.0	0.0	20.0		
17	Zeigler, Cecille	Clerk	32.0	0.0	32.0		
STORE 17 TOTALS:			172.0	19.4	191.4		
GRAND TOTALS:			337.2	32.9	370.1	report footer	
						PAGE 1	page footer

control break on STORE NUMBER field

