SECD2613
System Analysis and Design

UTM
UNIVERSITI TEKNOLOGI MALAYSIA

PART V #1
Output, Input and User Interface Design

OBJECTIVES

- Understand the objectives for the effective input/output design and user interface design.
- Design functional input forms for different users of business systems.
- Relate output content to output methods inside and outside the organization.
- Design useful input forms and display output for people interacting on the web (variety of user interfaces).

MAJOR TOPICS

OUTPUT DESIGN

- Output classification
- Reports
- Output screen design

INPUT DESIGN

- Input methods
- Design guidelines

USER INTERFACE DESIGN

- Guidelines for user interface design
- Storytelling HCI

INTRODUCTION

- Output and user interface design is the first task in the systems design phase of the SDLC

OUTPUT DESIGN focuses on **user needs for screen and printed forms of output**, while USER INTERFACE DESIGN stresses **user interaction with the computer**, including INPUT DESIGN and procedures

MAJOR TOPICS

OUTPUT DESIGN

- Output classification
- Reports
- Output screen design

OUTPUT DESIGN

- Before designing output, ask yourself several questions:

What is the purpose of the output?

Who wants the information, why it is it needed, and how will it be used?

What specific information will be included?

Will the output be printed, viewed on-screen, or both? What type of device will the output go to?

Note:
Your answers to these questions will affect your output design strategies

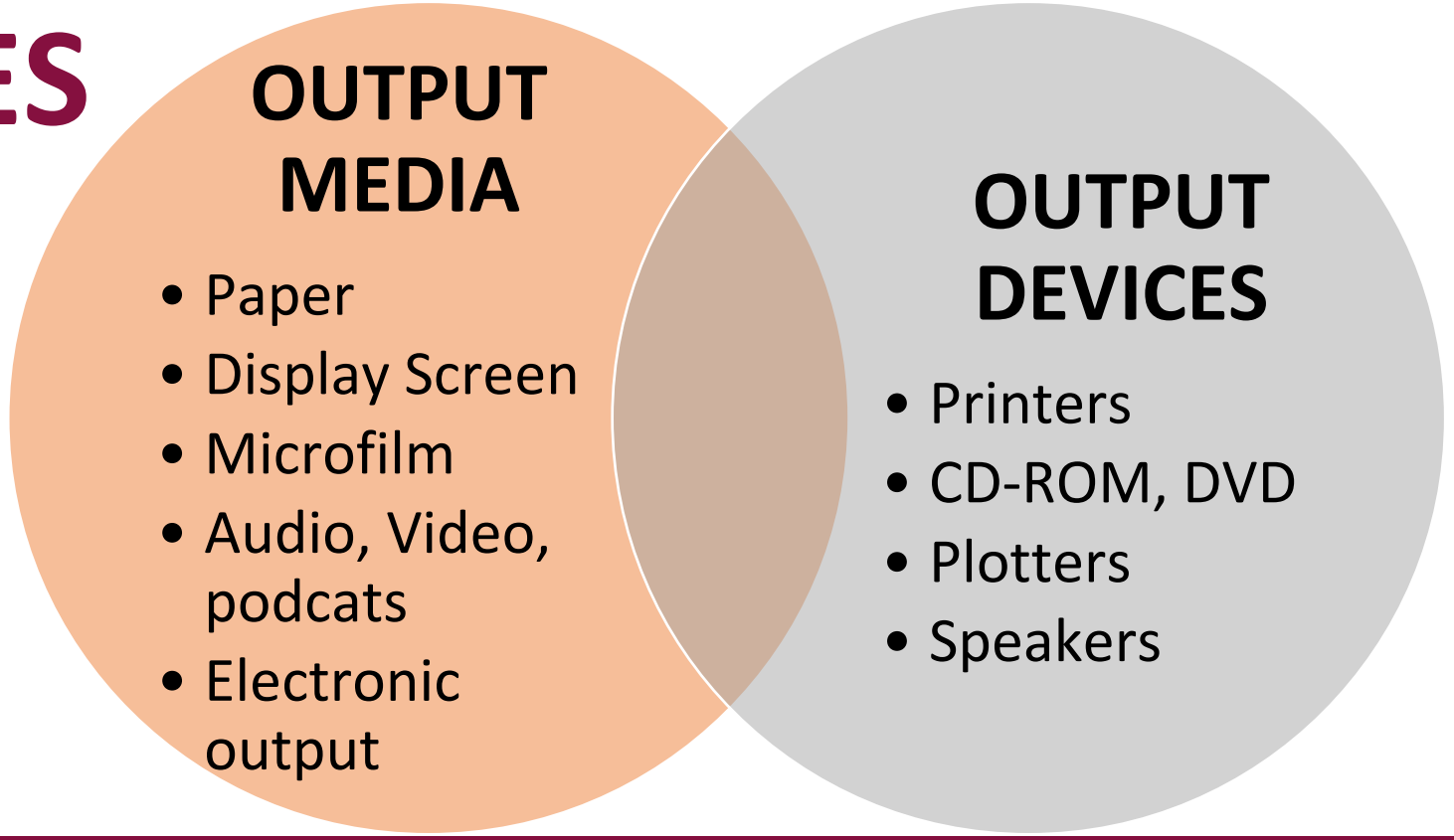
- The quality of system input will determines the quality of system output.
- Output can be in many forms such as printout, reports, display audio, CD's, e-mail or webpages.

OUTPUT DESIGN OBJECTIVES

- Output is essential to ensuring the use and acceptance of the information system.

1. Designing output to serve the intended purpose
2. Designing output to fit the user?
3. Delivering the appropriate quantity of output
4. Making sure the output is where it is needed
5. Providing the output on time
6. Choosing the right output method

OUTPUT TECHNOLOGIES: MEDIA AND DEVICES



Output technologies differ in their:

- Speed
- Cost
- Portability
- Flexibility
- Storage and retrieval possibilities

A COMPARISON OF OUTPUT ME

Output Method	Advantages	Disadvantages
Printer	• Affordable for most organizations • Flexible in types of output, location, and capabilities • Handles large volumes of output • Highly reliable with little down time	• Still requires some operator intervention • Compatibility problems with computer software • May require special, expensive supplies • Depending on model, may be slow • Environmentally unfriendly
Display screen	• Interactive • Online, real-time transmission • Quiet • Takes advantage of computer capabilities for movement within databases and files • Good for frequently accessed, ephemeral messages	• May require cabling and setup space • Requires system for taking "snapshots" of screen and storing them for future use
Audio output and podcasts	• Good for individual user • Good for transient messages • Good where worker needs hands free • Good if output needs to be widely distributed	• Needs earbuds where output will interfere with other tasks • Has limited application
Mobile devices	• Highly portable • Very interactive using gestures • Zoom is possible	• Screen may be too small for text • Icons and buttons may be confusing • May be lost more easily
Electronic output (email, Web sites, blogs, and RSS feeds)	• Reduces paper • Can be updated very easily • Can be "broadcast" • Can be made interactive	• Is not conducive to formatting (email) • Is difficult to convey context of messages (email) • Web sites need diligent maintenance

Kendall eBook
Part 4 • The Essentials of Design
Page ***296***

OUTPUT CLASSIFICATIONS

INTERNAL OUTPUT

- used within the corporation
- **example:** all types of report for manager.

NICHOLVILLE TELEPHONE COMPANY, INC.
P.O. Box 122, Nicholville, New York 12965-0122
(315) 328-4411

PAGE 1 OF 6

BILLING DATE	TELEPHONE NUMBER
MAR 1, 2002	315/328-5555
DELINQUENT AFTER	ACCOUNT NUMBER
MAR 20, 2002	1000 / 7

AMOUNT DUE $54.93
AMOUNT PAID $

JOE SMITH
104 WINDY HILL RD.
NICHOLVILLE NY 12965-0104

PLEASE SEND PAYMENT TO
NICHOLVILLE TELEPHONE COMPANY, INC.
P.O. Box 122
Nicholville, New York 12965-0122

Please Detach at Perforation and Return This Portion With Your Payment

TELEPHONE NUMBER	ACCOUNT NUMBER
315/328-5555	1000

SMITH JOE K

NICHOLVILLE TELEPHONE COMPANY, INC.

PAGE 1 OF 6

PAYMENTS RECEIVED AFTER FEB 28 ARE NOT INCLUDED

BILLING DATE	DELINQUENT AFTER
MAR 1, 2002	MAR 20, 2002

PREVIOUS BALANCE	PREVIOUS PAYMENTS	BALANCE FORWARD	CURRENT CHARGES	AMOUNT DUE
$53.04	$53.04	$.00	$54.93	$54.93

CUSTOMER DETAIL

NICHOLVILLE TELEPHONE COMPANY CURRENT CHARGES

MONTHLY SERVICE FROM MAR 1 THRU MAR 31	31.30
OTHER CHARGES/CREDITS	1.26
AT&T 00288	20.56
VERIZON 00698	1.81
TOTAL CURRENT CHARGES	54.93
TOTAL AMOUNT DUE - PLEASE PAY THIS AMOUNT	$54.93

EXTERNAL OUTPUT

- used outside the organization
- **example:** pay-checks, annual reports, utility bills, advertisements
- should differs from internal output in its design and appearance.

November 7, 2002 Course Summary Report Pg 1 0f 28
Fall Semester 2002

CourseID	Course Name	Units	Total Sects	Total Enroll	Avg. Enroll /Sect
Act102	Accounting Prin.	3	4	300	75
....	.....	...	...	...	...
Bio101	Into to Biology	3	6	600	100
...	...	...	...	...	...
Chm109	Organic Chem	3	2	90	45
...	...	...	...	...	....
Mkt114	Prin. Of Marketing	3	2	110	55

TURNAROUND DOCUMENT

- a document that is sent out and then returned;
- some external output is designed to serve double duty as a turnaround document
- **example:** utility bills, warranty cards, etc

MARS BIO-MED PROCESSES INC

TECH.:	
CONTACT #:	
BRANCH:	

WARRANTY REGISTRATION CARD

Please complete and return all the information below to info@marsbiomed.com or fax to 905-723-9610 to activate your LibertyBOSS' Warranty.

INSTALL DATE:			SERIAL #:	OLD:	New:
COMPANY:			CONTACT:		
ADDRESS:			TELEPHONE #:		
CITY/STATE.:			FAX #:		
ZIP CODE:			EMAIL ADDRESS:		
PRACTICE: (Check one)	PART TIME	AVERAGE	BUSY	TOTAL # OF CHAIRS:	# OF OPS:	# OF HYGIENE ONLY:
# OF DOCTORS		FULL TIME	PART TIME	# OF HYGIENISTS:	FULL TIME	PART TIME

Follow us on Facebook and check out our new website at www.marsbiomed.com

HOURS OF OPERATION (Times): MONDAY TUESDAY WEDNESDAY THURSDAY FRIDAY SATURDAY SUNDAY

CLOSED AT LUNCH: YES NO TIME: WEBSITE:

www.marsbiomed.com 1-866-594-3648
Find us on Facebook

DESIGNING PRINTED OUTPUT REPORT

- Report Design Conventions : WYSIWYG
- Paper Quality, Type and Size
- Organizations strive to reduce the flow of paper and printed reports
  - Users find it handy to view screen output, then print the information they need
  - Printed output is used in **turnaround documents**
- Well organized and consider report design features
  - Functional attributes
    - The heading, page number, date, column heading, grouping data, control breaks)

Example of Good report design

identifying fields

hours fields

Employee Hours
Week ending date: 6/28/2016

report header

Store Number	Employee Name	Position	Regular Hours	Overtime Hours	Total Hours
8	Andres, Marguerite	Clerk	20.0	0.0	20.0
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
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**

page header

control break on Store Number field

group footer

report footer

Page 1

page footer

FIGURE 8-15 The Employee Hours report is a detailed report with control breaks, subtotals, and grand totals. Notice that a report header identifies the report, a page header contains column headings, a group footer contains subtotals for each store, a report footer contains grand totals, and a page footer identifies the page number.

DESIGNING PRINTED OUTPUT

- Types Printed output Reports :
  - **Detailed reports**
    - Print a report line for every record on the master file.
    - Can be quite lengthy
  - **Exception reports**
    - Print a line for all records that match a certain condition.
    - Useful when the user wants specific information
  - **Summary reports**
    - Print one line for a group of records that are used to make decisions.
    - Reports that provide comprehensive data

DETAIL REPORT

- Can be quite lengthy, better alternative is to produce an exception repo

EMPLOYEE HOURS
WEEK ENDING DATE: 6/24/05

PAGE 1

STORE NUMBER	POSITION	EMPLOYEE NAME	REGULAR HOURS	OVERTIME HOURS	TOTAL HOURS
8		Andres, Marguerite	20.0		20.0
		Bogema, Michelle	12.5		12.5
	Asst Mgr	Davenport, Kim	40.0	5.0	45.0
		Lemka, Susan	32.7		32.7
		Ramirez, Rudy	40.0		48.5
	Manager	Ullery, Ruth	20.0	8.5	20.0
			165.2		178.7
		STORE 8 TOTALS:		13.5	
		De Martini, Jennifer	40.0		48.4
17		Haff, Lisa	40.0	8.4	40.0
	Manager	Rittenbery, Sandra	40.0		51.0
		Wyer, Elizabeth	20.0	11.0	20.0
		Zeigler, Cecille	32.0		32.0
			172.0		191.4
		STORE 17 TOTALS:		19.4	
			337.2		370.1
		GRAND TOTALS:		32.9	

EXCEPTION REPORT

- Useful when the user wants information only on records that might require action.

OVERTIME REPORT
WEEK ENDING DATE: 6/24/05

PAGE 1

STORE NUMBER	POSITION	EMPLOYEE NAME	OVERTIME HOURS
8	Asst Mgr	Davenport, Kim	5.0
	Manager	Ramirez, Rudy	8.5
		STORE 8 TOTALS:	13.5
11	Manager	Gadzinski, Barbara	10.0
	Clerk	Stites, Carol	12.0
	Asst Mgr	Thompson, Mary Kay	1.5
		STORE 11 TOTALS:	23.5
17	Clerk	De Martini, Jennifer	8.4
	Clerk	Rittenbery, Sandra	11.0
		STORE 17 TOTALS:	19.4
		GRAND TOTAL:	56.4

SUMMARY REPORT

- Reports used by individuals at higher levels in the organization include less detail than reports used by lower-level employees

EMPLOYEE HOURS SUMMARY
WEEK ENDING DATE: 6/24/05

PAGE 1

STORE NUMBER		REGULAR HOURS	OVERTIME HOURS	TOTAL HOURS
8		181.2	13.5	194.7
11		184.8	23.5	208.3
17		172.0	19.4	191.4
	TOTALS:	538.0	56.4	594.4

OUTPUT SCREEN DESIGN

1. Keep the screen simple.
2. Keep the screen presentation consistent.
3. Facilitate user movement among screens.
4. Create an attractive screen.

EXAMPLES: OUTPUT SCREEN DESIGN

ORDER

Name	John Smith
Address	123 Elm St.
Payment	Credit Card

Quantity	Item	Price	Remove
1 [1]	Cheeseburger	$5.50	—
	Pizza	$8.75	Remove

Subtotal:	$14.25
Tax:	$1.00
Total:	$15.25

PLACE ORDER | CANCEL

MENU

Cheeseburger
With lettuce, tomato

Pizza $1.29
Pepperoni

Salad $7.99
Chicken, lettuce

ORDER SUMMARY

Pizza	1x	$2.99
Salad	1x	$2.99
Total		$20.98

Place Order

Order Summary

Review your order before proceeding to payment.

Corrected Food Choices

Cheeseburger with lettuce and tomato	$ 8,99
French Fries	$ 3,49
Soft Drink	$ 2,00
Order Total	$16,48

Delivery Address	123 Mai St

EDIT

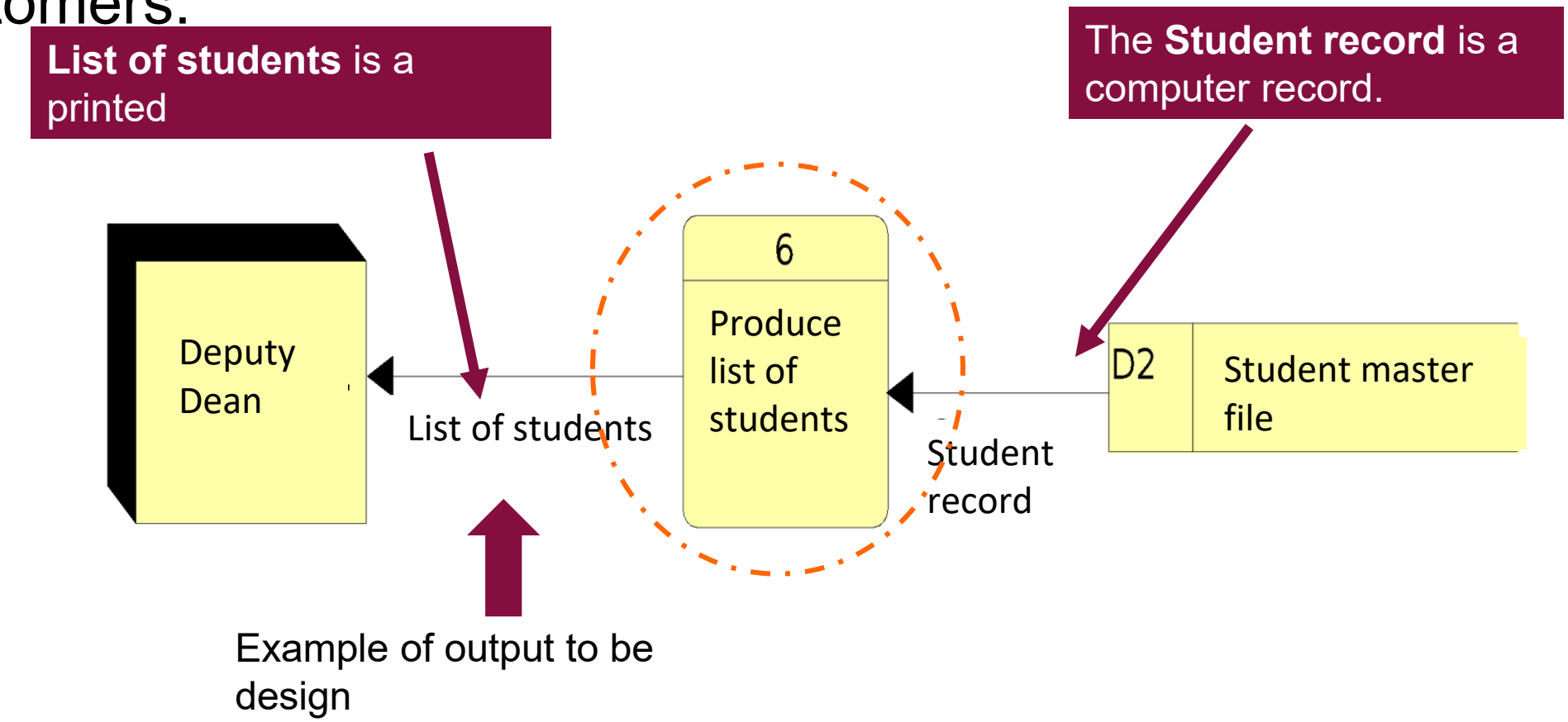
Order Total	$16,48

Delivery Address
123 Main St

Place Order

FROM DFD TO OUTPUT DESIGN

Process 6 produce letters to customers:



FROM DFD TO OUTPUT DESIGN

UNIVERSITI TEKNOLOGI MALAYSIA

Faculty of XXXXXX

List of Students

(Date: 9 June 2025)

No.	Student ID	Name	Program Name	Year of Study	Status
1	A12345	Ali bin Ahmad	Bachelor of Information Systems	3	Active
2	B67890	Siti Aminah bt. Ismail	Bachelor of Computer Science	2	Active
3	C54321	Ahmad bin Hassan	Bachelor of Business Admin	4	Graduated
4	D98765	Lim Mei Ling	Bachelor of Accounting	1	Active
...	...	...	...	...	...

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Thank You

update: August 2019 (sharinhh)

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