

# **System Analysis Design**

## **Week-9-Lesson-1**

### **Designing Effective Input and Output Method**



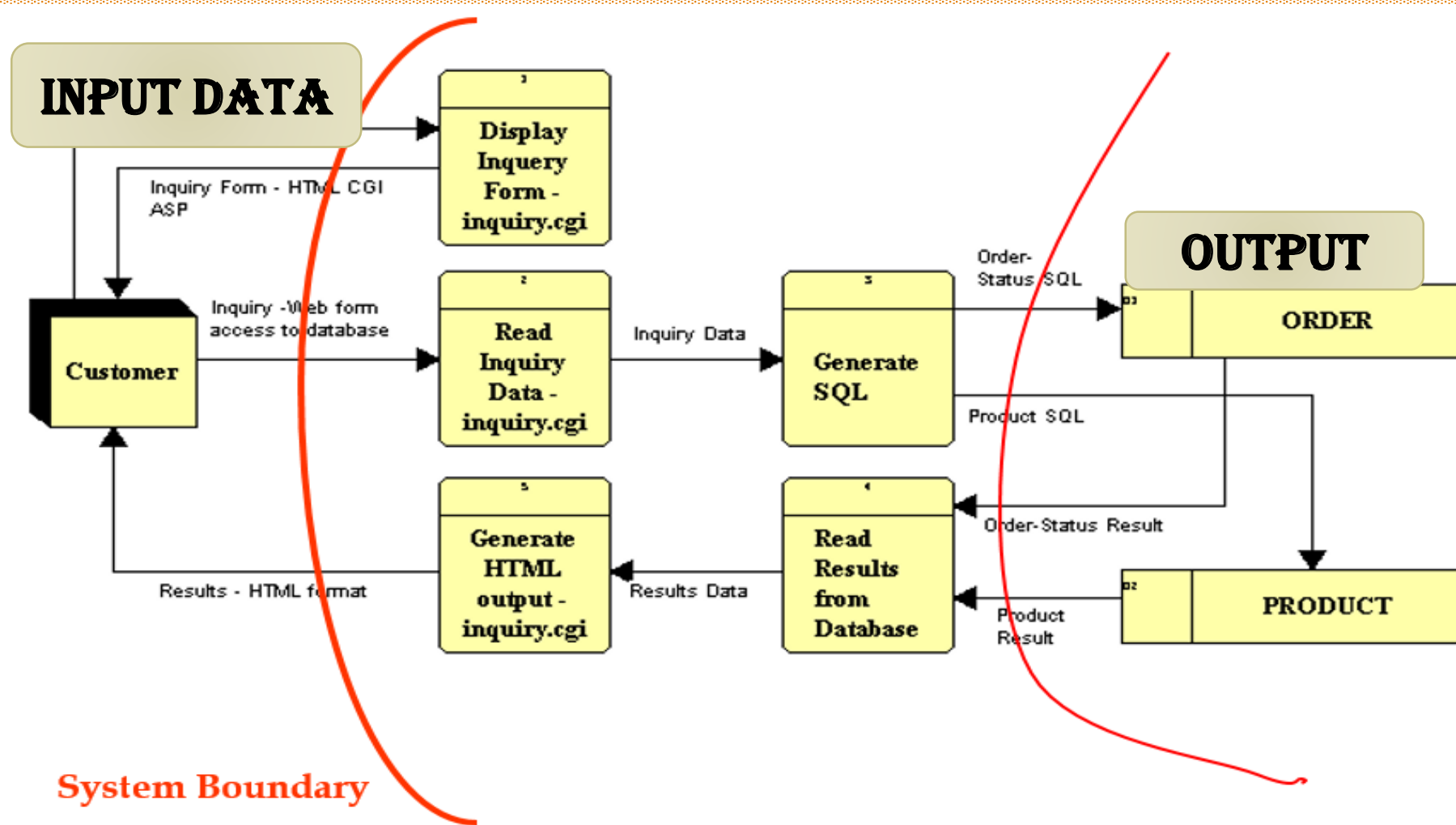
**Daffodil**  
*International*  
**University**

# Learning Goals

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- Design functional input forms for users of business systems.**
- Design engaging input displays for users of information systems.**
- Design useful input forms for people interacting on the Web.**
- Understand the objectives for effective output design.**
- Relate output content to output methods inside and outside the organization.**
- Design display output**

# Input and Output Methods



# Designing Effective Input

- ❑ The quality of system input determines the quality of system output.
- ❑ It is vital that input forms, displays, and interactive Web documents be designed with this critical relationship in mind.
- ❑ Well-designed input forms, displays, and interactive Web fill-in forms should meet the objectives of effectiveness, accuracy, ease of use, consistency, simplicity, and attractiveness.

# Good Form Design

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- ❑ To design forms that people find useful, four guidelines for form design should be observed:
  1. Make forms easy to fill in.
  2. Ensure that forms meet the purpose for which they are designed.
  3. Design forms to ensure accurate completion.
  4. Keep forms attractive.

# Making Forms Easy to Fill in

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## **Form Flow:**

- Designing a form with proper flow can minimize the time and effort expended by employees in form completion.
- Forms should flow from left to right and top to bottom. Illogical flow takes extra time and is frustrating.
- A form that requires people to go directly to the bottom of the form and then skip back up to the top for completion exhibits poor flow.

# Making Forms Easy to Fill in

## ❑ **Seven Sections of a Form:**

❑ A second method that makes it easy for people to fill out forms correctly is logical grouping of information. The seven main sections of a form are the following:

1. Heading
2. Identification and access.
3. Instructions
4. Body
5. Signature and Verification
6. Totals
7. Comments





# Major captioning alternatives

The diagram illustrates several captioning alternatives for form elements:

- Line caption:** A yellow sticky note with an arrow pointing to the "Last Name" field in a form with fields for First Name, Title, Last Name, and Telephone.
- Below-line caption:** A yellow sticky note with an arrow pointing to the "First Name" field in a form with fields for First Name and Title.
- Boxed caption:** A yellow sticky note with an arrow pointing to the "Last Name" field in a form with fields for First Name, Last Name, and Telephone.
- Vertical checklist:** A yellow sticky note with an arrow pointing to a list of travel methods: Airplane, Train, Company Car, and Personal Car.
- Horizontal checklist:** A yellow sticky note with an arrow pointing to a list of departments: Photo Lab, Printing Department, Maintenance, and Supplies.
- Table caption:** A yellow sticky note with an arrow pointing to a table with columns for Quantity, Unit, Item Description, User Cost, and Expanded Cost.

First Name \_\_\_\_\_

Last Name \_\_\_\_\_

Title \_\_\_\_\_

Telephone ( ) -

First Name \_\_\_\_\_

Last Name \_\_\_\_\_

Title \_\_\_\_\_

Telephone - -

First Name

Last Name

Title

Telephone - -

Check off method of travel:

- Airplane
- Train
- Company Car
- Personal Car

Photo Lab  Printing Department  Maintenance  Supplies

Quantity	Unit	Item Description	User Cost	Expanded Cost
Subtotal				
Sales Tax				
Total				

# Data Input Methods

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- ON-LINE** - User directly Enters data using screen prompts
- OFF-LINE** -Forms filled by users-
  - for example- candidates for admission to a college fill forms
- Data from forms keyed in by a data entry operator

# Good design and Bad Design

Name

-	-	-	-	-	-	-	-	-	-

Address

-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-

Tick as applicable

<b>Individual</b>
<b>Hindu undivided family</b>
<b>Parent/Guardian of minor</b>

**Bad design :** Tendency will be to fill name on top line. Not enough space for letters of address

**Bad design :** Choices are not codified. Data entry operator will be confused.

# Good design and Bad Design(Cont...)

Enter date

Day	month	Year

(Good design)

Enter time

Hr	Min	Sec

(Good design)

Enter date

--	--	--	--	--	--	--	--	--	--

(Bad design)

Enter time

--	--	--	--	--	--	--	--	--	--

(Bad design)

# Good design and Bad Design(Cont...)

## MENUS

User presented several alternatives and asked to type his/her choice

## Example

### SELECT ALTERNATIVE

Type 1 For entering new student record

Type 2 For deleting student record

Type 3 For changing student record

Your choice



## A Web-based input form for users to register

Festive Seas Cruise Registration Form - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://www.festiveseascruise.com/register.php



# Festive Seas Cruise

## Registration Form



Complete and print this form to register for the summer cruise season.  
You will be contacted by one of our friendly service representatives.

Last Name  First  Middle

Address

City  State  Zip

Phone (  )  Email

Please choose a 4-day, 7-day or 14-day cruise.  
If you prefer an ocean view room, please click on the box directly below the cruise you choose.

I wish to sail on the 14-day cruise. Cost per person \$1950

I prefer an ocean side room. Add \$490

I wish to sail on the 7-day cruise. Cost per person \$1150

I prefer an ocean side room. Add \$290

I wish to sail on the 4-day cruise. Cost per person \$825

I prefer an ocean side room. Add \$190

Total amount due

A dynamic Web page responds more rapidly to short user input than it would if several different pages were required for display

European Ferry Booking Agent - Mozilla Firefox  
http://www.euroferrybooking.com/routeselection.php

EUROPEAN FERRY BOOKING AGENT  
Make choices and the form will expand with new options.

Choose outbound route: Belfast to Stranraer  
Choose return route: Stranraer to Belfast  
Starting Date: 18 June 2008  
Ending Date: 26 June 2008  
Number of people: 4

After the customer selects four passengers, the server generates four drop-down lists.

European Ferry Booking Agent - Mozilla Firefox  
http://www.euroferrybooking.com/routeselection.php

EUROPEAN FERRY BOOKING AGENT  
Make choices and the form will expand with new options.

Choose outbound route: Belfast to Stranraer  
Choose return route: Stranraer to Belfast  
Starting Date: 18 June 2008  
Ending Date: 26 June 2008  
Number of people: 4  
Age of passenger 1: Adult 18-64  
Age of passenger 2: Adult 18-64  
Age of passenger 3: Student 6-17  
Age of passenger 4: Student 6-17

After identifying all four passengers, a question regarding a vehicle appears.

European Ferry Booking Agent - Mozilla Firefox  
http://www.euroferrybooking.com/routeselection.php

EUROPEAN FERRY BOOKING AGENT  
Make choices and the form will expand with new options.

Choose outbound route: Belfast to Stranraer  
Choose return route: Stranraer to Belfast  
Starting Date: 18 June 2008  
Ending Date: 26 June 2008  
Number of people: 4  
Age of passenger 1: Adult 18-64  
Age of passenger 2: Adult 18-64  
Age of passenger 3: Student 6-17  
Age of passenger 4: Student 6-17  
Type of Vehicle: Car

More questions appear until the form is complete.

European Ferry Booking Agent - Mozilla Firefox  
http://www.euroferrybooking.com/routeselection.php

EUROPEAN FERRY BOOKING AGENT  
Make choices and the form will expand with new options.

Choose outbound route: Belfast to Stranraer  
Choose return route: Stranraer to Belfast  
Starting Date: 18 June 2008  
Ending Date: 26 June 2008  
Number of people: 4  
Age of passenger 1: Adult 18-64  
Age of passenger 2: Adult 18-64  
Age of passenger 3: Student 6-17  
Age of passenger 4: Student 6-17  
Type of Vehicle: Car  
Car Make: Ford  
Car Model: Focus Estate  
Trailer: None  
Get Booking Quote



# Client Information Input form

Client

Client - Working Data View Another Client Home

**Basic Info** Edit Basic Info

Retayna Client No	Wor10003
Client's Acct No	TEST101
Name	Working Data
Address 1	1st Floor
Address 2	White Cottage
Address 3	Peacock Lane
Town	Tysoe
County	Warwickshire
Country	United Kingdom
Postcode	CV350SG
Website	
Active	yes

Open Site

**Email Address** Add Email

Email Address	Type
info@workingdata.co.uk	Work

Edit Email

**Phone No** Add Phone No.

Phone No	Type
01295 680 986	Work

Edit Phone No.

**Fax No** Add Fax No.

Fax No	Type
01295 680 986	Work

Edit Fax No.

**Account** **Contacts** **Activity History**

**Contact Info** Add Contact

Title	Mr
First Name	Franc
Middle Names	
Last Name	Sutherland
Job Title	Software Engineer

Edit Basic Info

**Email Address** Add Email

Email Address	Type
info@workingdata.co.uk	Work

Edit Email

**Phone No** Add Phone No.

Phone No	Type
01295 680 986	Work

Edit Phone No.

**Fax No** Add Fax No.

Fax No	Type
01295 680 986	Work

Edit Fax No.

Record: 1 of 1 No Filter Search

Delete Client ©2011 Working Data

# Product Details Input form design

**Product Details** ✖

Name:	<input type="text" value="Adjustable Race"/>	List Price:	<input type="text" value="\$0.00"/>
Product Number:	<input type="text" value="AR-5381"/>	Standard Cost:	<input type="text" value="\$0.00"/>
Model:	<input type="text" value=""/>	Sell Start Date:	<input type="text" value="1/06/1998"/> <input type="button" value="15"/>
Category:	<input type="text" value=""/>	Sell End Date:	<input type="text" value="&lt;d/MM/yyyy&gt;"/> <input type="button" value="15"/>
Subcategory:	<input type="text" value=""/>	Discont. Date:	<input type="text" value="&lt;d/MM/yyyy&gt;"/> <input type="button" value="15"/>
Product Line:	<input type="text" value=""/>	Safety Stock:	<input type="text" value="1000"/>
Class:	<input type="text" value=""/>	Reorder Point:	<input type="text" value="750"/>
Style:	<input type="text" value=""/>	Days To Man.:	<input type="text" value="0"/>
Color:	<input type="text" value=""/>	Make:	<input type="checkbox"/>
Size:	<input type="text" value=""/> <input type="text" value=""/>	Finished Goods:	<input type="checkbox"/>
Weight:	<input type="text" value=""/> <input type="text" value=""/>		

# The order screen from the Merchants

Welcome to MerchantsBay! Where Buyers and Sellers Negotiate Prices

File Edit View Favorites Tools Help

Address <http://www.merchantsbay.com/default.asp?template=merchant&subtemplate>

Home | E-Mail

**MERCHANTS BAY**

Search by

NAVIGATE to

- PRODUCTS
- SERVICES
- CUSTOMER SERVICE

MEMBER SIGN-IN

User Name

Password

**LOGIN**

**INFORMATION CENTER**

- First Time Visitor
- Member Registration
- Negotiating and Making a Purchase
- About MerchantsBay.TV

Home : Products : Candles

Select One

- French Vanilla
- Dutch Apple
- Assortment - Coffee
- Gardenia
- Gingerbread
- Happy Holiday
- Heather
- Hollyberry
- Honeydew
- Lilac
- Maple Sugar
- Midnight Mist
- Mountain Mist
- Mulberry
- Orange Creme
- Peach
- Pear Essence
- Plum Pudding
- Potpourri
- Rain
- Raspberry
- Spiced Pumpkin
- Strawberry**
- Sugar Cookie
- Summer Breeze
- Sunflower
- Victorian Romance
- Cranberry
- Watermelon

GO

CART CHECKOUT

REGISTRATION

Stains Price

er Price

Tips on How to Negotiate

Done Internet

# Designing Effective Output

Output Method	Advantages	Disadvantages
Printer	<ul style="list-style-type: none"><li>• Affordable for most organizations</li><li>• Flexible in types of output, location, and capabilities</li><li>• Handles large volumes of output</li><li>• Highly reliable with little down time</li></ul>	<ul style="list-style-type: none"><li>• Still requires some operator intervention</li><li>• Compatibility problems with computer software</li><li>• May require special, expensive supplies</li><li>• Depending on model, may be slow</li><li>• Environmentally unfriendly</li></ul>
Display screen	<ul style="list-style-type: none"><li>• Interactive</li><li>• Online, real-time transmission</li><li>• Quiet</li><li>• Takes advantage of computer capabilities for movement within databases and files</li><li>• Good for frequently accessed, ephemeral messages</li></ul>	<ul style="list-style-type: none"><li>• May require cabling and setup space</li><li>• Still may require printed documentation</li></ul>
Audio output and podcasts	<ul style="list-style-type: none"><li>• Good for individual user</li><li>• Good for transient messages</li><li>• Good where worker needs hands free</li><li>• Good if output needs to be widely distributed</li></ul>	<ul style="list-style-type: none"><li>• Needs earbuds where output will not interfere with other tasks</li><li>• Has limited application</li></ul>
DVD, CD-ROM, and CD-RW	<ul style="list-style-type: none"><li>• Has large capacity</li><li>• Allows multimedia output</li></ul>	<ul style="list-style-type: none"><li>• Requires a computer and display for reading data</li></ul>
Electronic output (email, Web sites, blogs, and RSS feeds)	<ul style="list-style-type: none"><li>• Reduces paper</li><li>• Can be updated very easily</li><li>• Can be “broadcast”</li><li>• Can be made interactive</li></ul>	<ul style="list-style-type: none"><li>• Is not conducive to formatting (email)</li><li>• Is difficult to convey context of messages (email)</li><li>• Web sites need diligent maintenance</li></ul>

# Nature of Output Reports

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## □ TOP MANAGEMENT

- Summary highlighting important results

Graphical Output – Pie charts

- Bar charts

- Maps

Needed for strategic management

# Types of Outputs

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- ❑ **Internal outputs** stay inside the system to support the system's users and managers
- ❑ **External outputs** leave the system to trigger actions on the part of their recipients or confirm actions to their recipients.

# Types of Reports

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## □ Detailed Reports:

- Present information with little or no filtering or restrictions.
- Some detailed reports are historical in nature.
- Detailed reports confirm and document the successful processing of transactions and serve as an audit trail for subsequent management inquiry.

## □ Exception Reports:

- Filter data before it is presented to the manager as information.
- Exception reports only report exceptions to some condition or standard.





If users want more details regarding the shipping status, they can call up a separate screen.

Order #	Retailer	Order Date	Order Status
933603	Bear Bizarre 1001 Karhu Lane Bern, Virginia 22024	09/02/2008	Partially Shipped

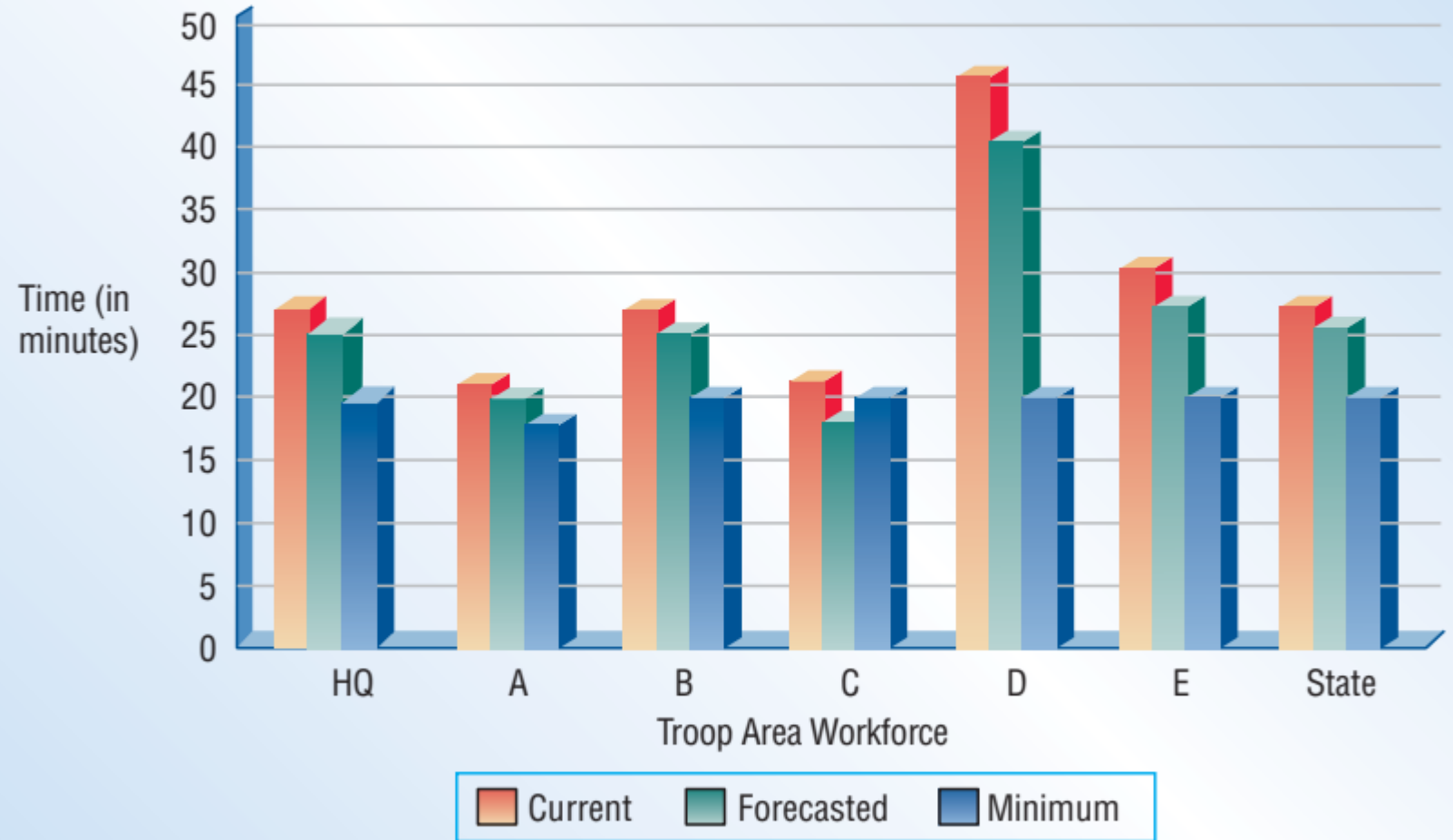
Units	Pkg	Description	Price	Amount	Detailed Status
12	Each	Floppy Bears	20.00	240.00	Backordered Due 10/15
6	Each	Growlers	25.00	150.00	Backordered Due 10/15
2	Each	Special Edition	70.00	140.00	Shipped 09/02
1	Box	Celebrity Mix	150.00	150.00	Shipped 09/02
12	Each	Santa Bears	10.00	120.00	Backordered Due 10/30
				<u>800.00</u>	

Contact	Account Balance	Credit Rating	Last Order	Shipped
Ms. Ursula Major 703-484-2327	0.00	Excellent	08/21/2008	On Time

Press any key to see the rest of the list;      ESC to end;      ? for help

A bar chart display  
for onscreen  
inspection of troop  
time response

Average Response Time per Troop Area  
Nebraska State Patrol





**SoundStage  
Entertainment Club**  
2630 Darwin Drive - Bldg B  
Indianapolis, IN 45213

Invoice No. 301231

**INVOICE**

**Customer**

Name Carlina Smith  
Address 3019 Duroc Drive  
City Little Rock State AR ZIP 42653  
Phone 502-430-4545

Date 7/21/97  
Order No. 346910

Payment Amt

Detach and return top portion with payment

Qty	Description	Unit Price	TOTAL
1	Star Wars - Empire Strikes Back VHS	\$19.99	\$19.99
1	Eric Clapton Unplugged CD	\$13.99	\$13.99
1	Alladin VHS	\$17.95	\$17.95

**Payment Details**

- Cash
- Check
- Credit Card

Name \_\_\_\_\_  
CC # \_\_\_\_\_  
Expires \_\_\_\_\_

SubTotal	\$51.93
Shipping & Handling	\$7.00
Taxes	\$2.95
<b>TOTAL</b>	<b>\$61.88</b>

Office Use Only

Please return top portion invoice with payment. Make checks payable to:  
SoundStage Entertainment Club.

RETURN TOP PORTION WITH PAYMENT

A Typical output  
form for invoice

# A Typical output form for invoice

# INVOICE



East Repair Inc.  
485 Amsterdam Avenue  
New York, NY 10023

**BILL TO**  
John Smith  
2 Court Square  
Long Island City  
New York, NY 11201

**SHIP TO**  
John Smith  
664 Lexington Avenue  
6th Floor  
New York, NY 10022

**INVOICE #** 00234  
**INVOICE DATE** 03/25/2014  
**P.O.#** 1742/2014  
**DUE DATE** 04/09/2014

QTY	DESCRIPTION	UNIT PRICE	AMOUNT
1	Front and rear brake cables & Throttle cable	56.00	56.00
1	New set of pedal arms	162.00	162.00
3	Labor 3hrs	25.00	75.00
		Subtotal	313.00
		Sales Tax 5.0%	15.65
		<b>TOTAL</b>	<b>\$328.65</b>

## TERMS & CONDITIONS

Payment is due within 15 days

Citibank, N.A.  
Account number: 2345678  
Routing: 23412

*Thank you*



## World's Trend Performance Dashboard



This dashboard has a variety of displays depicting performance measurements to help make decisions.

	Winter	Spring	Summer	Fall
Women's Casual	102.1	103.4	105.6	110.3
Women's Formal	100.7	88.9	86.5	81.4
Men's Casual	100.2	104.3	105.1	105.6
Men's Formal	85.8	102.0	103.1	80.3
Girl's Clothing	94.3	103.5	100.2	92.4
Boy's Clothing	100.2	95.6	103.4	93.7



	Winter	Spring	Summer	Fall
Returning Customers	5,832	4765	4732	6203
New Customers	543	475	502	906
Total	6,375	5,240	5,234	6,823
Total Sales	\$510,000	\$393,000	\$429,188	\$709,592

# References

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1. **System Analysis and Design**, by Elias M. Awad
2. **Systems Analysis and Design**, Kendall and Kendall,  
Fifth Edition