Advantages of the Database Approach

Program-Data Independence and Improved Data Sharing

- Separates the data from the applications that use it

- Allows for many different applications to interact with the data
  - PCs/Macs
  - Mobile platforms
  - Web applications
  - Service frameworks

Planned Data Redundancy and Improved Data Consistency

- Does not completely eliminate redundancy but enables control over the type and amount of redundancy
- Minimizing redundancy improves data consistency.
- “Single source of the truth”

Employees' Skills

Employee ID	Employee Address	Skill
426	87 Sycamore Grove	Typing
426	87 Sycamore Grove	Shorthand
519	94 Chestnut Street	Public Speaking
519	96 Walnut Avenue	Carpentry

Productive Application Development

- Reduces the cost and time of developing data-centric applications
- Standardized database formats allow for many purpose built tools
- Common design activities strengthen communication between stakeholders and developers

Improved Data Quality and Enforcement of Standards

- By establishing rules about how our data are stored, we can improve the quality of the data being stored.

- We can use business rules to inform standards that improve data quality.

StudentID	Name	GPA
123	Jeff	3.08
124	Kim	3.53
125	Julie	3.51
126	Josh	5.00

Other Advantages

- Improved accessibility

- Reduced maintenance

- Improved decision support

```
1  select Play.*, Act.* from Act
2  inner join Play on Play.PlayID = Act.ActID
```

100 %

Results | Messages

	PlayID	Title	Synopsis	GenreID	ActID	Act	PlayID
1	1	Henry IV, Part I	Henry IV, Part 1, culminates in the battle of Shrew...	3	1	1	1
2	2	Henry VI, Part 1	With an underage boy now king of England, Henr...	3	2	2	1
3	3	Henry IV, Part 2	Henry IV, Part 2, continues the story of Henry IV, ...	3	3	3	1
4	4	Henry VI, Part 2	With a weak, unworldly king on the throne, the E...	3	4	4	1

Click to select the

Some Cautions

- DBMSs do many things but still require good design principles.
- DBMS implementations require certain sets of specialized skills.
- Shared data creates a need for organizational concordance (data governance).

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