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.

 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

"Single source of the truth"

Productive Application Development

 Reduces the cost and time of developing datacentric 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

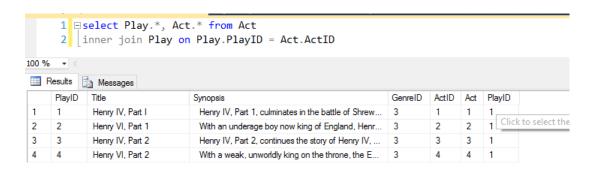
Other Advantages

Improved accessibility



Reduced maintenance

Improved decision support



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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