8. Complexity Matrix

Informatics 370
Deliverable 8: Complexity Mark Sheet

2021

Topic	Level		Marks	Marks given	MAX
1. Special GUI	For online applications: Responsive web design For desktop applications: Form design according to design principles (Schneiderman's golden rule on navigation applies here)	*	3		42
	Appropriate use of grids/tables		3		
	Appropriate use of tabs/links		3		
	Use of graphs in an appropriate business context		4		
	The storage and display of graphical information, like photos with a good business reason		3		
	Working e-mail automatically generated from the database in an appropriate business context		2		
	SMS messages automatically generated from the system in an appropriate business context		2		
	Extensive user-friendly search facility		3		
	At least one use of a tree to display data from the database		3		
	Able to dynamically modify a data tree structure and in doing so adjusting the data in the database		4		
	At least one use of a calendar view of data (not a date/time picker; not a plug-in such as Google calendar)		3		
	Uploading a file into the system with appropriate business reason		3		
	The use of audio/video in an appropriate business context		3		
	At least one use of an administrator configurable timer in an appropriate business context		3		
2. Database access	At least 30 tables used (4 member groups) or 40 tables used (5 member groups)	*	6		15
	Full referential integrity on all tables	*	6		
	At least one use of master-detail table relationships (Schneiderman's golden rule on system status applies here)	*	3		
3. Reports	At least 3 simple list reports in a reporting tool (no control breaks, no graphs, single table)	*	3		15
	At least 2 transactional report with 2 or more control breaks (with heading and calculated values/totals, multiple tables)	*	6		
	At least 1 report with adjustable criteria		3		
	At least 1 management report using a graph		3		
4. Flexibility	All data that can change in future should not be hard coded but maintained in a sub-module of the system (e.g. Lookup tables)		6		12
	Some business rules are not hard coded, but maintained in a submodule of the system.		6		
5. Error handling	**All** system-generated errors are trapped and consistent, user-friendly error messages are displayed		6		12
	Appropriate data validation on **all** input fields		6		

6. Help	At least one menu item or other control that opens up a complete help document (HTML, PDF, Help-file)		3		**15**
	Extensive context-sensitive help. E.g. calling Help on a specific screen/function will automatically open the specific help for that screen/function.		6		
	Search Facility on Help		3		
	Extensive use of hints		3		
7. Security	Logon screen with user ID and password and fixed user profiles		3		**13**
	Applying two factor authentication with applicable business reason.		3		
	Encrypted passwords in database	*	1		
	Flexible user profiles (i.e. you can dynamically add user profiles that will enable/disable access to certain parts of the system)		6		
8. Audit Trail	An audit trail of all transactions in the system showing at least date, time, user, transaction type, critical data (such as amount and quantity of transaction)		6		**9**
	Able to search the audit trail on any of the following: date, user, transaction type		3		

Topic	Level		Marks	Marks given	MAX
9. Deployment	For a desktop application: Fully functional installation disks that take care of application installation requirements (install and uninstall)		3		**15**
	For an online application: Deployment of application to a publicly accessible web server		3		
	For a mobile application: Deployment to an App Market place (such as the PlayStore or the AppStore)		6		
	Deployment of the database to a remote database server		3		
10. Backup and Restore	A backup and restore subsystem exists that backup/restore all data (system may exit during restore)		3		**3**
11. Import/Export Data	Able to open Word or Excel and automatically place data in it based on the parameters provided (with a good business reason)		6		**9**
	XML or JSON: At least 1 XMLor JSON file for Importing or Exporting of data (with good business reason)		3		
12. External INPUT device	Simple Link to an external INPUT device using plug-and-play technology, such as a swipe card reader, bar code reader, etc. or a native component such as a QR reader, a GPS component, etc		3		**18**
	Loose Link to an external INPUT device using device specific software. Data or images must seamlessly be stored in the database but device specific software is visible to the user. (This could include a digital camera, scanner, voice recording device, thump print reader, etc.)		6		
	Tight Link to an external INPUT device using device specific software. Data or images must seamlessly be stored in the database but device specific software is **not** visible to the user. (This could include a digital camera, scanner, voice recording device, thump print reader, etc.)		9		
13. External APPLICATION / Services	Integrate an existing web service into your application (with good business reason)		3		**9**
	A fully functional link to an installed external application system exists and the interface must be shown to work on the external system. Note that this excludes Microsoft Office Applications		6		
14. Multiplatform processing for an appropriate business reason	Appropriate business use of static views on an alternative platform.		3		**27**
	Appropriate use of dynamic views on an alternative platform (i.e. data is displayed from the system's database)		3		

	Appropriate use of substantial dynamic views on an alternative platform (i.e. both reading and writing data from the system's database)		9		
	Uploading a file through an alternative platform onto the system's database.		3		
	Substantial processing on a third platform (i.e. both reading and writing data from the system's database)		9		
15. Programming Principles	The use of a data layer to facilitate interaction between your database and your business layer		3		**12**
	The use of an API to facilitate interaction between your business layer and your presentation layer		6		
	Comprehensive use of stored procedures and/or triggers and/or jobs.		3		
16. Innovative addition to the system	Any very advanced innovative addition to the system (e.g. machine learning, AI, block chain, text mining, IOT, etc.)	104	1-9		**9**
		Complexity Marks Obtained		**0**	

Maximum Complexity Marks	**235**
Complexity Marks Required for Del 5 (5 members in team)	150
Complexity Marks Required for Del 5 (4 members in team)	100