

# A-Level ICT Project

## A Structural Guide & Checklist

Name:

Form:

<b>Project Title:</b>	<b>AS or A2</b>
<b>Summary of Project:</b>	

**A2 students** - You should keep a **project log/diary** of your ideas, sketches and plans throughout the time of your coursework. **AS only** – Although the diary is not a requirement, it is a good tool for project management; and can be submitted as evidence under exceptional circumstances if work is lost or destroyed.

Component	Description	Date Done	Page Ref.
<b>SPECIFICATION</b>			
<b>A) ANALYSIS</b> – <i>a detailed description of the requirements specification; and the input, output and processing needs.</i>			
<b>Situation</b>	Briefly describe the geographical environment in which you are working, the client's organization/department, the client and a <b>short summary</b> about the specific current system that is the subject of your project i.e. what is it? Who are its users? And who/what are the subjects of the system?		
<b>Overview of the Problem</b>	Write a <b>short</b> statement describing the problems encountered in general with the current system. Also explain how you got involved in the project and what you have been asked to do or have offered to solve.		
<b>Interview</b>	<p>This goes in the <b>appendix</b> along with any copies of source documentation. The interview should aim to gather information about the <b>Current System</b> including the following:</p> <ul style="list-style-type: none"> <li>• The organization/department function</li> <li>• Aims &amp; objectives of the current system</li> <li>• General procedures including time-lines/frequency of events</li> <li>• Users and any others involved e.g. customers</li> <li>• Information/data gathered to be <b>input</b> e.g. member details</li> <li>• Documents, reports that are produced using the gathered data i.e. <b>outputs</b></li> <li>• How the gathered data is <b>processed</b> into the output information</li> <li>• Security, storage of data and backup issues</li> <li>• Problems encountered during any of the above procedures <i>including</i> errors caused and encountered; inefficiency of procedures (time); and loss of data.</li> <li>• Hardware and software available on-site and/or planned to purchase for the new system.</li> <li>• Users' ICT skills – current ICT usage, training etc.</li> <li>• Users' requirements regarding a new system with reference to the above including the user interface.</li> </ul>		
<b>Interview – Key Points</b>	<p>On one page of A4, list as <b>bullet points</b> the key points discussed at you interview with the client:</p> <ul style="list-style-type: none"> <li>• Current system</li> <li>• Problems encountered</li> <li>• User requirements for the new system</li> <li>• Your added suggestions for the new system based on your analysis of the current system.</li> </ul> <p>The client should verify the contents of this document and sign/date their agreement. The original copy of the interview should be placed in the appendix and reference made to it from this section.</p>		

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<b>The Current System</b>			
<b>A detailed description</b>	<ul style="list-style-type: none"> <li>Describe the current system <b>in detail</b>, expanding on the key points listed in the previous sections. Annotate source documentation as required and make references to them from this section.</li> <li>Users' ICT skill level</li> <li>Hardware and Software available on-site</li> </ul>		
<b>System Flow Diagram</b>	Draw a one-page system flow diagram of the current system. The scope of the diagram should be limited to the specific system/problem area. One sheet of A3 is permitted.		
<b>Inputs/ Outputs and Processing</b>	<ul style="list-style-type: none"> <li>List all of the data input</li> <li>Describe the information output including format and content.</li> <li>Describe what data processing is carried out</li> <li>A level zero DFD can also be included to diagrammatically summarise the above.</li> </ul>		
<b>Problems in Detail</b>	<p>List and describe the problems identified with the current system, including:</p> <ul style="list-style-type: none"> <li>Qualitative problems i.e. procedural issues, data errors</li> <li>Quantitative problems i.e. time taken to carried out procedures</li> </ul> <p>Remember to focus on problems that are relevant to the project solution.</p>		
<b>Proposed System</b>			
<b>Aim</b>	Describe what you hope to achieve with the new system.		
<b>Requirements Specification (objectives)</b>	<p>List and describe <b>ALL</b> of the requirements in detail, using ICT terminology wherever possible. You should include requirements about:</p> <ul style="list-style-type: none"> <li>Data capture methods/procedures</li> <li>Data verification and validation procedures</li> <li>Data processing</li> <li>Output required including format</li> <li>The user interface</li> <li>Navigation around the system</li> <li>Security issues</li> <li>Data backup issues</li> <li>Archiving data (if relevant)</li> <li>Training needs</li> </ul>		
<b>Inputs/ Outputs and Processing</b>	<p>List and describe</p> <ul style="list-style-type: none"> <li>All of the data that will be input</li> <li>The information that will be output including format and content.</li> <li>What data processing is carried out</li> </ul> <p>Include a level zero/one DFD to diagrammatically summarise the above.</p>		
<b>Old System vs. New System</b>	Write a <b>short</b> description comparing and contrasting the two systems.		
<b>Performance Criteria</b>	<p>With reference to the Requirements Specification (where possible) describe how you will assess that the solution has fulfilled the requirement. List the PCs either as QUALITATIVE (user/process/system effectiveness) or QUANTITATIVE (realistic timing issues in comparison to the old system).</p> <p>N.B. This section will be used to carry out your evaluation.</p>		
<b>Limitations</b>	Discuss any constraints on the development of the new system in terms of human and/or physical resources e.g. current skills, training needs, hardware/software limitations.		
<b>Project Plan</b>	<p>Prepare a plan listing and prioritizing how you will complete the project. Add start/end dates and highlight the critical path to complete the project on time.</p> <p>Draw a Gantt Chart or other appropriate time-management chart.</p>		

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<b>b) DESIGN</b>	<i>Evidence of your end-user's agreement to designs is desirable.</i>		
<b>Possible Solutions A2 ONLY</b>	Discuss a number of ways to solve the problem and fulfill the requirements specification of the new system i.e. manually and using ICT – don't be specific about the names of software, instead discuss types such as database and spreadsheet. Include consideration of the end-user's ICT literacy level.		
<b>Hardware</b>	Discuss the requirements of the project and justify the hardware required and describe the hardware available.		
<b>Software Analysis</b>	<b>Compare and contrast</b> different applications with reference to the Requirements Specification to identify a specific package to use. Further <b>justify</b> the chosen package with reference to the performance criteria and in terms of its usability, functionality, your own skill level, and the user's skill level. If the chosen package is not the best package then explain why you have decided to use another package.		
<b>Objectives</b>	List and describe what you still need to do to complete this section i.e. the sub-tasks. Prepare a plan.		
<b>Attributes</b>	List the names of all attributes (stored field data e.g. member name) that will comprise the new system. Follow the guidelines regarding <b>Leszinsky-Reddick</b> naming standards (see 'Successful Projects in Access' – P.M. Heathcote)		
<b>E-R Diagram A2 only</b>	<b>Show and describe the stages of normalization of your E-R diagram before presenting the final normalized diagram.</b>		
<b>E-R Diagram</b>	Draw a <b>normalized</b> E-R diagram showing all of the entities (tables) that will be included in the new system.		
<b>Data Dictionary</b>	For each table/entity heading add: <ul style="list-style-type: none"> <li>• A description of the table</li> <li>• A grid listing all of the attributes/fields and describing all of the fields parameters e.g. type, length, constraints, mask, validation, default value etc.</li> </ul>		
<b>Data Flow Diagram</b>	Include a <b>level two</b> DFD showing the flow of data into the system, processing, storage in tables, and output.		
<b>Storyboard</b>	Draw a detailed storyboard of the system from the user's viewpoint i.e. the interface forms/switchboards, dialogue boxes and outputs. Show the links between 'boards' and for each sketched 'board' add page reference numbers to the section where that form etc is designed.		
<b>Interface Theme</b>	Develop a colour and design theme for the interface of your system. This may be also specified by your client and could include company logos/colours/photos. Include, if appropriate, information regarding formatting i.e. standard fonts, font sizes and styles.		
<b>Interface Designs</b>	For each referenced 'board' include: <ul style="list-style-type: none"> <li>• A description of what is required</li> <li>• Sketches of designs in development with annotations regarding descriptions/ideas. Also discuss why a sketch was rejected. Basic sketches could be placed in the appendix.</li> <li>• For the final design annotate the detailed sketch showing the source or target table/fields and any additional formatting.</li> <li>• Add page/section reference numbers for buttons that run macros or open queries, reports or another form/dialogue box.</li> </ul>		
<b>Query Design</b>	For each named query: <ul style="list-style-type: none"> <li>• Describe the query</li> <li>• List the field(s) to query and the type of query required</li> <li>• List the fields to output i.e. show fields</li> </ul>		
<b>Macro Design</b>	For each named macro describe the actions required. Structure the macro as follows: PROCEDURE macro name Action Action etc ENDPROC		

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<b>Output Design</b>	For any output include: <ul style="list-style-type: none"> <li>• A description of what is required and the source form/query/macro.</li> <li>• Sketches of designs in development with annotations regarding descriptions/ideas. Also discuss why a sketch was rejected. Basic sketches could be placed in the appendix.</li> <li>• For the final design annotate the detailed sketch showing the source table/fields</li> </ul> Outputs can include Reports, Word (Mail-Merge) and/or Excel.		

<b>c) Testing Plan - <i>the aim of testing is to provoke failure i.e. to find out what does <u>not</u> work</i></b>			
<b>Strategy</b>	What are the objectives of testing the system? With reference to your Requirements Specification, discuss the strategy in terms of: <ul style="list-style-type: none"> <li>• <b>Functional Testing</b> <ul style="list-style-type: none"> <li>- Unit Testing of individual components e.g. macros</li> <li>- Integrity Testing – combined units</li> </ul> </li> <li>• <b>System Testing</b> – a full system test from beginning to end.</li> <li>• <b>End-User Testing</b> – ‘real user’ system testing.</li> <li>• When elements will be tested i.e. during development or on completion of the system.</li> </ul>		
<b>Plan</b>	Use a grid layout divided into the sections described in your strategy. For the Functional Testing part include: <ul style="list-style-type: none"> <li>• A <b>numbered</b> list of what elements that you are going to test, when you are going to carry out the test and a reason given as to why you are testing an element</li> <li>• If validation is applied to fields then each field will need to be tested.</li> <li>• What values that you are going to use including normal, extreme (boundary) and erroneous values.</li> <li>• How many times are you going to try out the same test to ensure that it was not just coincidence?</li> <li>• What results are expected for each value?</li> <li>• An extra column for the actual value returned on testing and another for your resulting comment.</li> </ul> For the System Testing part include: <ul style="list-style-type: none"> <li>• Does the system function as required i.e. from input to output?</li> <li>• Is the system user-friendly?</li> <li>• Is the interface easily navigable? Etc.</li> </ul> In terms of the End-User this could take the form of a signed statement endorsing the testing or a questionnaire followed by a summary of the questionnaire findings.		

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<b>IMPLEMENTATION</b>			
<p><i>- A step-by-step guide to building the system using screenshots and annotations. The commentary should describe how you approached the task, in what order, what was done, what decisions were made and why, any problems encountered and how they were dealt with, and any deviations from the design and why.</i></p> <p><i>- Write the guide aimed at someone with the same level of expertise as you. <u>This is not a beginner's guide to Access.</u></i></p>			
<b>Tables</b>	Having created the database, create each table in design view. Provide evidence of your work by taking screenshots of the completed Design Views. Where certain fields require additional parameters to be set you will need to add cropped shots of that part of the screen. Annotate all of your work by hand or by using callouts in WORD.		
<b>Relationships</b>	A screenshot of the established relationships between tables annotated to describe any other parameters that were set e.g. referential integrity.		
<b>Macros</b>	List the macros designed including the actions set/code written		
<b>Queries</b>	An annotated screenshot of each named query		
<b>Forms</b>	Show the development of forms in Design View with annotations describing links made to fields/tables/macros/queries etc and any associated expressions written for any element of the form. Also describe any formatting carried out.		
<b>Reports</b>	<p>Show the development of reports in Design View with annotations describing links made to fields/tables/macros/queries etc and any associated expressions written for any element of the report. Also describe any formatting carried out.</p> <p>Do the same for any other Access output.</p>		
<b>Mail-Merge</b>	Print a fieldname view of the mail merge document e.g. Word, Publisher, and annotate it to describe the associations made.		
<b>Excel (optional)</b>	Show the formulae view of the worksheet(s) and annotate as necessary		
<b>Security</b>	Use screenshots to show how you set the users' rights to establish the security requirements of your system.		
<b>Database Startup</b>	Show how you set the parameters for startup of the database.		

<b>TESTING</b>			
<b>Functional &amp; System Testing</b>	Complete the testing plan grid as you carry out the planned tests. Include any <b>annotated screenshots</b> as required to enhance the validity of your testing. Use page number references to these hard copies you're your testing grid. Where problems/errors are encountered show and discuss the changes that you make to correct the fault; and re-test that unit.		
<b>End-User Testing</b>	This could take the form of a signed statement endorsing the testing; or a questionnaire followed by a summary of the questionnaire findings. Again, make changes as necessary and re-test.		

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<b>EVALUATION</b>			
	<p>Evaluate the system in terms of the requirements specification and the performance criteria listed in the analysis section.</p> <ul style="list-style-type: none"> <li>• Did all the requirements get implemented and tested?</li> <li>• How effective is the solution in meeting the requirements specification i.e. the performance indicators?</li> <li>• What was unexpected, what was difficult and were there any errors that cannot be explained?</li> <li>• Are there any remaining limitations? E.g. hardware – lack of RAM memory, network difficulties etc. Give reasons for these.</li> <li>• What modifications and future enhancements could be carried out? (Does the end-user have any suggestions?)</li> </ul> <p>N.B. This is not an evaluation of your own work habits.</p>		
<b>USER DOCUMENTATION</b>			
	<p>Produce a paper-based guide aimed at the user's IT literacy level. Take the user step-by-step from startup to closing down the system.</p> <p>N.B. This is a <b>system user's guide</b> not a software package guide.</p> <p>The guide should be well illustrated with screenshots and annotated with tutorial style guidance whilst avoiding the use of jargon. Include:</p> <p>Help on installation  Configuration (if appropriate)  Usage  Coping with errors  Backing up procedures  Closing down instructions.</p>		
A2 ONLY	<p>Technical Documentation is also required. It should include:</p> <p>Minimum system requirements</p> <p>If required by the client, guidance on amending/deleting/adding sections, using screenshots of design views of:</p> <ul style="list-style-type: none"> <li>• Tables</li> <li>• Forms</li> <li>• Queries</li> <li>• Macros</li> <li>• Outputs</li> </ul> <p>Guidance on resolving system errors.</p>		