COMP4 Standardising

Project 6

ANALYSIS (12 Marks)

Expected contents for this section of the report are:

- Background to and identification of problem
- Description of current system
- Identification of the prospective user(s)
- Identification of user needs and acceptable limitations
- Data Volumes (This was new for COMP4)
- Data source(s) and destination(s)
- Analysis Data Dictionary (from perspective of end user)

ANALYSIS (continued) (12 Marks)

- DFDs (existing AND proposed system) to level 1
- Objectives for the proposed system
- Realistic appraisal of the feasibility of potential solutions
- Justification of chosen solution (use of formal methods, e.g. observation, analysis of existing paperwork, interviews, surveys)

and *:if appropriate*

- E-R Models for database projects
- Identification of Objects and Object analysis diagrams for Object-oriented programmed solutions

TRANSFORMATIONS OF GRAPHS OF FUNCTIONS

This is a *potentially* Complex problem with a clearly identifiable Real End User. No data is permanently stored and it is not primarily a Data Processing project.

The Complexity comes from it having a fully coded solution as decided at the **end** of the Analysis section. It maps to the table entry FC6 : “Complexity of a non-computing field of the problem i.e. modelling of mathematical processes”.

It will be coded in Pascal using the Open Source Lazarus IDE

Good background information and identification of the problem including explanation of Mathematical terminology pp 4 & 12

Good description of Current System with supporting evidence pp 14 & 136

Users identified p18 but no discussion of skill level
Clear and detailed set of user needs and limitations p18

Data Sources & Destination (p19) are quite well done specially since this is not a DP problem so doesn't map easily. Data Volumes are (p21) possibly slightly over detailed for this type of problem.

Good Attempt at Analysis Data Dictionary (p26) but again difficult with this type of problem.

The DFDs for both existing and proposed systems (15, 23) are fairly simple and not quite correctly detailed.

Appropriate measurable Objectives (p 27). Could be improved but End User has initialled them.

Good comparison of relevant possible packages which could be used and possible programming languages (p 29)

Good Justification (p 32) of proposed solution including the benefits to the Candidate of using Pascal as mentioned on previous page

Use of formal methods included questionnaire (p 136) and examination of teaching documents.

XX marks

DESIGN (12 Marks)

Expected contents for this section of the report are:

- overall system design
- description of modular structure of system
- definition of data requirements (Design data dictionary – from the viewpoint of programmer) including

either:

  - description of record structure
  - validation required
  - file organisation and processing

DESIGN (continued) (12 Marks)

or:

- database design including description of normalised relations and revised E-R diagram
- identification of appropriate storage media

identification of processes and suitable algorithms for data transformation

or class/object diagrams/definitions and details of object behaviours and methods

DESIGN (continued) (12 Marks)

- user interface design (HCI) rationale including:
  - **sample** of planned **data capture and entry designs** (prototype screen dumps may be used but must be annotated with the HCI rationale)
  - **sample** of planned valid **output** designs
- description of measures planned for security and integrity of data
- description of measures planned for system security
- overall test strategy **in relation to the problem being solved and tested**.

Description and overall system overview diagram is present (p 36). There is also an extensive set of Hierarchy Charts (p 36).

Validation including errors is not in a separate section but there is some reference to it included elsewhere e.g. DDD (P 43).

Record / Database Structure, File Organisation & Processing and D'base design & ER model are not relevant.

Storage Media and Format are reasonably well justified for this non-DP project (p 45)

There are extensive well explained algorithms which are written in pseudocode (P 46)

UI comprises many detailed screen plans with good rationale (p 66)

Security and Integrity of Data are briefly discussed (p 72) and System Security is good in this context where data is not being permanently stored (p 72)

Test Strategy (p 73) is rather Generic and needs relating to the actual project.

XX marks

TECHNICAL SOLUTION (20 Marks)

There is no requirement for a separate 'Technical Solution' section in the report.

- Candidates are expected to code routines in order to demonstrate their technical competence in programming
- Much of the evidence will be contained in the appendices and/or the system maintenance section. Code should be self-documenting wherever possible, using meaningful identifiers
- Layout should aid readability. Annotation can be added to clarify the meaning of code.

TECHNICAL SOLUTION (cont) (20 Marks)

- Candidates are expected to code data transformation routines themselves in order to demonstrate their technical competence in programming. Much of the evidence will be contained in the appendices and/or the system maintenance section but also in the User Manual.

- It is helpful if Candidates (or Teachers) identify ‘complex code’. All the coding evidence should be clearly annotated by the candidate to demonstrate their understanding of the code they have written.
- All code created using Wizards e.g. VB.Net TableAdapter code must be clearly identified.

TECHNICAL SOLUTION (20 Marks)

The types of evidence expected include the following:

- annotated listings of the program(s)
- annotated listings of macros (if appropriate) coded by the candidate
- **samples** of annotated 'design views' showing details of application-generated forms, reports, queries; buttons, cross-tabulations etc
- any other reported evidence showing how the implementation was achieved. Testing to prove the system works as expected.

TECHNICAL SOLUTION (20 Marks)

- system maintenance to enable understanding of how the system works and to enable it to be maintained
- user manual to show the system actually in use.
- any other reported evidence showing how the package has been customised and implementation achieved, such as algorithms for processing.
- Evidence from Testing and the User Guide can support the fact that the system works.

The KEY to performance levels 4 & 5 is to judge how technically demanding the programming is and the overall complexity of the project.

Processing Objectives all met. Examples of complex code included Polymorphism and Runtime Object Creation.

Maths > KS4 level.

Some annotation on listing which is self documenting in part.

Evidence comes from various places e.g. User Guide.

Customisation was not relevant here.

XX marks

SYSTEM TESTING (8 Marks)

THIS SECTION IS NOT RELATED TO COMPLEXITY.

Expected contents for this section of the report are:

A test plan that includes:

- details of individual tests using a minimal set of test data
- expected results for clearly defined typical data
- expected results for clearly defined erroneous data
- expected results for clearly defined boundary (extreme) data
- samples of annotated hard copy of actual test runs for typical, erroneous and boundary data, and samples of annotated hard copy showing the system working (system testing)
- all samples cross-referenced to the test plan

There is a satisfactory test plan design (p 76) which covers some but not all of the required aspects of testing. There is incomplete test data (p79).

Overall, the testing is inadequate (p 81) but Typical, Erroneous and Boundary data have been tested (p 79 -80).

No screen shots present, so not Cross referenced to Test table.

However, Screenshots in other places suggests that system does work and the verification evidence from the teacher has been accepted.

X marks

SYSTEM MAINTENANCE (7 Marks)

Expected contents for this section of the report are:

- A system overview
- A sample of the detailed algorithms as implemented by the candidate
- Procedure and Variable lists (including their scope) with descriptions for programs, and a list of package items developed with descriptions (if a package is used).

SYSTEM MAINTENANCE (cont'd) (7 Marks)

All cross-referenced to listings of program code and **representative samples** of annotated design views, showing details of forms, reports, queries, buttons, cross tabulations etc. that have been tailored by the candidate (if a package is used).

Please DO NOT include automatically generated code or details of items generated by using wizards. An acknowledgement that the item has been used is all that is required.

Good written description of System Overview (p 84)

Several pseudocode algorithms (p 86) linked to actual code examples.

Fairly sensible Var & Proc names (p 146) but little commenting.

Procedures listed without explanation (P 105). No Variables list (or Scope mentioned).

Forms & Macros etc not relevant in this case.

X marks

USER MANUAL (7 Marks)

Expected contents for this section of the report are:

A separate Contents page

A **brief introduction** and installation instructions

Detailed description of how to use **the whole** of the system, at a level appropriate to the user, including:

- **Samples** of actual screen displays in situ, uncropped;
- **Samples** of error messages and error recovery procedures.

- Contents page is Present (p 112)
- Good introduction (p113) but no installation included.
- Perhaps could have included loading from USB stick instead?
- Screen Displays well explained with labels (p114).
- No Discussion of Error Handling but Teacher states system is coded so that errors can't be generated
- Instructions are clear so as to enable easy use of system (p 114) X marks

APPRAISAL (6 Marks)

- A critical appraisal that matches the original objectives in the Analysis section to the final achievement. Although it should be the candidate's own appraisal, it may / should include comment/reports from other users.
- Worthwhile user feedback from the identified user is required. This must be authenticated by the project supervisor on the Candidate Record Form. This should be analysed by the candidate.
- Suggestions for further development should be included based on both of the above.

APPRAISAL (6 Marks)

- Clear evidence of genuine user feedback **authenticated by the assessor**.

- Thorough analysis of user feedback and/or evidence of continual interaction with user during the development of the system.

- Full and realistic suggestions as to how improvements and/or extensions are related to user feedback.

APPRAISAL Project 6

- Has compared outcomes vs earlier Objectives (p 129) but rather brief.
- Good suggestions for Further development (p132) but not related to End User Feedback since none obtained.
- Because there was no EU FB, this section is missing.

X marks

QUALITY OF WRITTEN COMMUNICATION (3 Marks)

Expected contents / features for the report are:

- Automatically generated contents page with Automatically generated page numbering
- Information presented in continuous prose with a Clear and logical organisation;
- Set out in sections identified in the specification.

QWC (cont'd) (3 Marks)

- Good use of English, grammar, punctuation and spelling
- Word-processed with a clear font style and size e.g. Arial 10 pt or 12 pt
- Use of appropriate word-processing techniques e.g. headers and footers with project title and candidate name, consistent styles for headings, use of tables that are properly formatted etc.

Logically organised in sections as set out in Specification, written in continuous prose.

Appropriate header and page footers.

Contents pages with computer generated TOC. Page numbering was not continuous but each section had a TOC and was paginated

Good use of WP facilities.

Spelling, Use of English and Grammar good.

X marks

Total for Project 6 – XX marks