A-level Computing (2510)
Unit 4 The Computing Practical Project (COMP4)

Centre number: 19269

Centre name: Woodbridge School

Candidate's full name: Jonathan Elliott Keable

Candidate number: 5238

Section 1 - The Project

To be completed by the candidate and returned to the teacher for approval before the project is started

Project title: Digital Image Manipulation

Outline description

A system needs to be designed to aid the teaching of the Imaging part of the AS physics course at the school. This system should include certain image editing algorithms, educational information about them, and ways for students to change the parameters of the algortihms.

Section 2 - Project development

To be completed by the candidate and teacher.

The candidate **(C)** and the teacher **(T)** should indicate which items are present in each section by selecting/ticking the appropriate boxes, providing the related page reference

Analysis	C	T	Page
Background to/identification of problem	☒	☐	5
Description of the current system	☒	☐	10
Identification of the prospective user(s)	☒	☐	10
Identification of user needs and acceptable limitations	☒	☐	10
Data source(s) and destination(s)	☒	☐	12
Data volumes	☒	☐	13
Analysis Data Dictionary	☒	☐	14
Data flow diagrams (DFDs) (existing and proposed systems)	☒	☐	17
Entity-relationship (E-R) model (if appropriate), E-R diagrams, entity descriptions	☐	☐	
Object analysis diagrams - inheritance, aggregation (if appropriate)	☐	☐	n/a
Numbered general and specific objectives of the project	☒	☐	19

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Analysis (continued)	C	T	Page
Realistic appraisal of the feasibility of potential solutions	☒	☐	20
Justification of chosen solution	☒	☐	20
Evidence of use of appropriate analysis techniques	☐	☐	

Comment	Maximum mark	Mark awarded
	12	

Design	C	T	Page
Overall system design	☒	☐	24
Description of modular structure of system	☒	☐	24
Definition of data requirements (Design Data Dictionary)	☒	☐	28
Description of record structure (if appropriate)	☒	☐	30
Validation required	☒	☐	30
File organisation and processing (if appropriate) or database design including normalised relations (if appropriate)	☒	☐	31
Sample of planned SQL queries (if appropriate)	☒	☐	31
Identification of storage media	☒	☐	31
Identification of suitable algorithms for data transformation, pseudocode of these algorithms	☒	☐	31
Class definitions (diagrams) and details of object behaviours and methods (if appropriate)	☐	☐	n/a
User interface design (HCI) rationale	☒	☐	34
UI sample of planned data capture and entry designs	☒	☐	34
UI sample of planned valid output designs	☒	☐	34
Description of measures planned for security and integrity of data	☒	☐	37
Description of measures planned for system security	☒	☐	37
Overall test strategy	☒	☐	38

Comment	Maximum mark	Mark awarded
	12	

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Technical Solution
Evidence for this section may come from copies of code listings in the appendix and/or details of software tailoring included in the systems maintenance section. It is not expected that candidates will supply multiple copies of listings, systems or algorithm design documentation.

Comment	**Maximum mark**	**Mark awarded**
	20	

System testing	**C**	**T**	**Page**
Design of test plan	☒	☐	40
A minimal set of test data	☒	☐	40
Expected results for typical, erroneous and extreme (boundary) data where appropriate	☒	☐	40
Annotated hard copy of samples of actual test runs	☒	☐	Appendix B
Cross-referenced to the test plan	☒	☐	40

Comment	**Maximum mark**	**Mark awarded**
	8	

System maintenance	**C**	**T**	**Page**
System overview	☒	☐	47
A sample of detailed algorithm design	☒	☐	52
Procedure and variable lists/descriptions for programs OR list of package items developed	☒	☐	60
Annotated listings of program code/macro code and tailoring	☒	☐	60

Comment	**Maximum mark**	**Mark awarded**
	7	

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User manual, including Quality of Written Communication	C	T	Page
A brief introduction and installation instructions	☒	☐	AppC 4
Detailed description of the use of the full system	☒	☐	AppC 5
Samples of actual screen displays in situ	☒	☐	AppC 5
Samples of error messages and error recovery procedures	☒	☐	AppC 12
Quality of Written Communication	☐	☐	

Comment	Maximum mark	Mark awarded
	10	

Appraisal	C	T	Page
Comparison of project performance against numbered general and specific objectives	☒	☐	67
User feedback authenticated by assessor	☒	☐	Appendix D
Analysis of user feedback	☒	☐	70
Possible extensions	☒	☐	72

Comment	Maximum mark	Mark awarded
	6	

This form should be attached to the candidate's work and retained at the centre or sent to the moderator as required.