Assignment Formats

Computer Programming

Introduction or Purpose

- The requirement of a programming assignment is to provide all the documentation necessary to explain the software program that has been developed, for the users, operators and other programmers.

Formatting and Style

- Title page
  Table of Contents
  UNIX style Manual (Man) Entry
  Data Structures
  Logic Design or Abstract Data Types
  Test Plans
  Appendices

Presentation Guidelines

- **Title Page**

Follow the format outlined in the section on General Physical Presentation.

- **Table of Contents**

Must include major sections and page numbers.

- **UNIX style Manual (Man) Entry**

This component follows the format of users' documentation for software provided in the open systems environment. Remember this component is produced for the user of the program.

- NAME section gives name of program and brief descriptive phrase.
- SYNOPSIS section gives syntax for running the program.
- DESCRIPTION section describes the program's function in non-technical terms (for the user).
- FILES section identifies data files used as input/output by executing program.
- LIMITATIONS section lists the known logical and physical limitations.
- WARNINGS section identifies potential problems which may occur because of assumptions made by the user.
- DIAGNOSTICS section lists the text of any error messages produced by the program, together with the reasons as to why they might be displayed.
- BUGS section is for documenting situations which make the program crash!

- **Data Structures**

- *External:* identify the format and data type of input and output files used by the executing program.
- *Internal:* identify and describe any array and record data structures or compound data types used within the program, giving for each component.
- Name
  Datatype
  Description

- **Logic Design or Abstract Data Types**
- For the procedural approach:
- Hierarchy chart showing the relationship of one module to another
- Algorithm for each module, represented in Pseudocode or NS charts
- A data dictionary must accompany each module
- Data dictionary lists for each variable or constant:
- Name
  Datatype
  Description
  Scope.
- For the object oriented approach:
- Object relationship description of one abstract data type to another
- Abstract data type inheritance diagram (if applicable)
- For each abstract data type:
- Name
  Datatype
  Description
- For each method:
- Name
  Datatype
  Description

- ➢ **Test Plan**
  Since exhaustive testing is usually impossible, test wisely (quantity):
- Normal cases (valid)
  Extremes (limits)
  Exceptions (unusual but valid)
  Major logic paths
- Invalid data: does program still produce a meaningful result (graceful degraduation)?

For each test:

- Reason for test
  List or table of selected data
  List of expected results
  Actual result or indication of it.

- **Appendices**
- APPENDIX A – PROGRAM SOURCE CODE LISTING
- INTERNAL DOCUMENTATION
- The purpose of internal documentation is to provide clear and precise information to the reader, (usually a programmer) about the source program code. It should be terse, accurate, and in point or tabular form, at the head of all code modules. The program Header Comment for main module contains:
- Program purpose
  Input to program
  Output to program
  Author and Date written
  Subject, Lecturer and Assignment No.
- At head of all sub modules:
- Purpose:
  On Entry: (Precondition)
  On Exit: (Postcondition).
- Any other commenting should be included only where code may be difficult to interpret otherwise.
- CODING STYLE GUIDELINES
- Use meaningful variable and constant names.
- Use white space to improve readability.
- Indent your code to show the relationship of one statement to another.
- Indent comments the same amount as the code to which they refer.
- Incorrect comments are worse than no comment at all.
- Comments should explain the purpose of a group of program statements, not paraphrase the code.
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- APPENDIX B – DATA USED AND PRODUCED
- Output : results of program with test data
  Input : data files used by program (if any)

Essays

Introduction or Purpose

- An essay is a literary composition on a given subject. It is an opportunity for you to present a considered piece of work indicating your ability to organise and analyse information and arguments, and explore relationships.
- There is more scope for elegance, literary style and discursiveness in an essay than in the other types of assignment covered here.

Formatting and Style

- The most common structure of an essay is:

- Synopsis
  Introduction
  Body
  Conclusion

Presentation Guidelines

- **Synopsis**

The synopsis is a series of brief statements that outline the content of a chapter or section of a document. Synopses are normally included in the contents list and chapter headings.

- **Introduction**

  The introduction is a guide for the reader as to what is in the body of the essay. The introduction provides some background or context and states the main argument or line of reasoning of the essay, and gives some indication of the points that will be covered.

- It also includes, if necessary, the definitions of any key terms in the topic.

- **Body**

  The body contains the substance of the argument, organised into a few main points. Each point is stated and developed in a separate paragraph.

- A paragraph contains one main idea which is usually stated clearly in the first sentence.

- The rest of the paragraph develop this idea through explanation, description, argument or illustration.

- The idea should be supported by evidence or by quoting ideas from sources that are acknowledged.

- If a paragraph is fundamental to your main argument, it may be necessary to state and contradict any opposing ideas. This critique may be done either within your paragraph or, if your argument is complex, in one or more additional paragraphs.

- **Conclusion**

  The conclusion draws the discussion together and restates the central argument. It does not add any new points to the essay, though it may lead to a general statement about the implications of the argument or recommendations.

- If you are required to write a synopsis/abstract (see Glossary), this should be on a separate page attached to the front of the essay. It gives a very brief summary of the argument and main points.

- A reference list, with full details of all references cited, should be included on a separate page.

Journals

Introduction or Purpose

- You may be required to keep a journal for a variety of reasons. It may serve as a toll of data collection in, say, clinical observation. In some subjects it might serve as a reflective device in which students are required to compare theory and practice or consider their own professional or academic development. In all cases, students should consult course materials, and their lecturer, to make sure that they understand the purpose of the journal for their subject. Normally journals avoid academic formalities. Colloquialisms, first-person pronouns, everyday speech rhythms and a personal style are permitted and, in fact, probably indicate successful journal work. Further explanation of the function and style is contained in :
- Holly, M.L. (1997) Keeping a professional journal. 2nd ed. Geelong: Deakin University

Formatting and Style

- Journal entries could contain any of the following elements:
- What happened
  What the facts are
  What was my role
  What feelings surround events
  What did I do
  What did I feel about what I did and why?
  What was the setting
  Flow of events
  Important elements of the event.
- Research journals may contain:
- Ideas
  Description of collected data or evidence
  Documentation of formative information throughout the project
  Summative information at the conclusion of the project
  Analysis and evaluation.

Presentation Guidelines

- Choose a format for your journal for example, book or an electronic format, considering your need for flexibility to enter information.
- Plan time to write.
- Date and label entries.
- Depending on the purpose of your journal, a presentation could involve dividing pages: with one side of the page containing descriptive facts and the other side interpretations or implications.

Oral Presentations

Introduction or Purpose

- Oral presentations are increasingly used for assessment. Because graduates are expected to be able to speak coherently in public, you can expect to receive some practice by way of having to present a paper to your class. If you are enrolled in an Honours degree, a seminar will almost certainly be part of the assessment and, if you proceed beyond Honours, you will attend professional conferences and be expected to present your findings in an orally presented paper.
- An oral presentation differs from other modes of presentation because it involves face-to-face contact with your audience, which may be very threatening, and a time element.

Preparation

- Write out what you are going to say. Then read it out aloud to yourself. You will probably find that the language sounds too formal and stilted and you will need to change phrases here and there, because spoken language is different from written language.
- Organize the content, and keep it simple. The ordering of the material will depend upon the type of presentation. In all cases, however, it should include the bare bones as an introduction, a presentation of the story you wish to tell, and a conclusion. The introduction will take your audience from what they know to what they need to know to understand the story, so you must be aware of who your audience will be. The conclusion will be simple-one message that the audience will take away. The story will be your presentation of the evidence that leads you (and the audience) to that conclusion.
- Check the timing. Remember that if you are going to use slides or other audio-visual materials, some time will be lost. Going over time in an oral presentation is a capital offence. Is even worse than going over word limits in an essay. Practicing your talk with all of the audio-visuals included is an important step in the preparation of the presentation. That way you can ensure that your slides are in order, and right way up, and that you will not go over time.
- Have a trial run with an audience. If it is a group presentation, you can be each other's audience for this step.
- Remember, the more you practice your talk, especially with an audience, the more you will feel in control of the material, and the more confident you will become.

At the Last Minute

- Be early, with all of your materials with you. Confidence is important, and you certainly do not want to be flustered.

- Make the success of your presentation your own responsibility, and don't leave things to chance. If you are to be the first speaker, then check out the venue beforehand. Make sure you know where you are going to stand, where you can put your notes and overheads, that your slides are ready to roll, that the computer is on and ready, how to turn on the overhead projector. Check out how the slides are changed and focussed, who is going to turn the lights off and on, and what signal the chairperson will give to let you know that time is nearly up. If you are a later speaker, you can work out some of these things by watching the earlier speakers.

Presentation Guidelines

- Speak up, clearly and audibly, as though you are talking to people, and not reciting something. Look at the audience. As you look around the audience, you will see some people who are obviously responding to your talk better than others. Use them to gain confidence, but be careful not to speak to them all of the time. Stand still whenever possible, and try to avoid mannerisms of movement (scratching your head) and speech ("um", "you know"). Never read your script, and use notes to a minimum. Keep an eye on the time.
- Try to make the talk as interesting as possible, by means of showing the audience how interested you are in it, and by relating the story to people's knowledge and experience. It is best to avoid jokes, unless the joke has immediate relevance and a purpose - a joke that goes flat, can throw you off balance for the rest of your talk.
- Everybody feels nervous when speaking in public, so do not be surprised if you do. You can control nerves by being well prepared, and by relaxing before delivering the talk.
- If yours is a group presentation, introduce each team member. Organize the individual participants so that the change-over between members is smooth. Practice the change-overs before the presentation.

Aids to Presentation

- Always arrange equipment in advance, and make sure you know how to work it.
- Some specific tips:
- **Overhead transparencies:** A bad transparency is worse than none. A rule of thumb is not to have more than ten lines of text or more than one concept on one transparency. Make sure that the writing is large and clear (font size 20 or more), and free from spelling and grammatical errors. Give your audience time to read your transparency, but do not read it aloud verbatim, unless you want them to take notes.
- If you are using a photocopy as a transparency, exclude extraneous material. If a table contains lots of columns and lines in addition to the information you wish to present, then make your own simplified table, rather than say, "Ignore these columns ...". Unless you can enlarge the photocopied material to at least font size 18, find some other way to present these data.

- **Slides:** As a general rule, do not try to present more than one slide per minute of your talk. If you have a substandard slide, don't apologize for it - don't show it in the first place. Organize your talk so that the slides are shown in blocks, so that the lights are not going off and on all the time. If the slide shows a table or writing, again, ensure that the writing is legible, and that it contains only relevant material.
- **Powerpoint:** Be careful with colour. Rarely does the colour on your computer screen match the colour the audience in the hall will see. Black writing on a blue background may show up beautifully on your screen, but may look like black-on-black in a lecture room.
- **Questions**
  Question time can be quite threatening, because you cannot rely on the material you have prepared, and you have to think on your feet. It is a good idea to anticipate questions you think may be asked, and prepare answers. When you practice in front of an audience, ask that audience to ask you questions.
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- It is the task of the chairperson to ask for questions, and inappropriate for the speaker to do so. Therefore, when you have finished your presentation, just stand where you are, and let the chairperson take over. Answer questions briefly, and do not be afraid to say that you don't know an answer. If you do not hear a question, ask the questioner to repeat it. If you do not understand it, tell the questioner that you don't understand the question, and ask for a clarification: "I am sorry, I am not sure what you mean. Could you re -phrase the question, please?" If a question is very long, ask the questioner to summarize it. If the question is a multi-part one, try to answer all parts in order -if you can, the audience will think you are amazing; if you cannot, and have to ask the questioner what you have omitted, the audience will forgive you.

Poster

Introduction or Purpose

- Posters are increasingly used in assessment, and are a popular mode of presentation at conferences, particularly for students who want to report on incomplete projects. Posters differ from most other modes of presentation in that all the information is visible at the same time.

Formatting and Style

- The challenges you face when presenting a poster are: to catch the eye of potential readers, and attract them to your poster; to make the poster legible to people standing a metre or more from it; to enable the reader to follow the logic of the poster.

Presentation Guidelines

- These strategies for developing posters are only suggestions. The way a poster works out will depend on the nature of the subject matter, the story you want to tell, the availability of materials, and above all, your imagination and skill. However, the following may help.

- Use appropriate sizes for headings and text – title as much as 25mm high, bold text; main headings at least 10mm high; and supporting text at least 5mm. Your name should be part of the title, maybe 20mm high.
- Choose a font that is easily read – Helvetica, Times, Times New Roman, Palatino are recommended – and avoid fancy fonts that may look good but are difficult to read.
- The reader will follow the logic if you have informative subheadings with numbers. The reader will be more comfortable if his/her eye is directed down the poster rather than across. You can use arrows instead of numbers to direct the reader's eye.
- Use active, informative headings rather than formulae or waffle. Headings such as "Introduction", "Materials and Methods", "Results", are boring and uninformative. The subheading "Compound X Causes Dogs to Wag Tails" is preferable to "Studies of the Effect of Compound X on Caudal Motor Behavior in the Dog", because it tells the reader much more in fewer words.
- Use mixed case in headings and text. Capitals are very hard to read. Thus, "Marmalade is Stickier than Jam" is easier to read than "MARMALADE IS STICKIER THAN JAM" in a poster.
- To make the poster more attractive:
- Use only one background colour.
- Line up the material you have put onto the poster, justifying down the left and right margins.
- Leave blank space – about one-half of the area of the poster should be blank, otherwise it can look cluttered.
- You may want to go into third dimension. Something that juts out from the poster may attract the eye of a potential reader.
- Remember that posters tell the story in pictures, and the writing on a poster is there to explain the significance of the pictures. Therefore, the pictures and text should be integrated, and not separated into different compartments in the poster.
- Techniques such as powerpoint can enhance a poster's appearance, but don't go overboard – many an otherwise good poster is ruined by being illegible against a busy background of colour that swallows the poster's story.
- If you are going to a conference with your poster:
- Do not roll it up if it has a cardboard backing – the wrinkles that appear will never come out.
- Organise the poster so that it can be cut into pieces that can easily be carried flat, and reassembled at the conference.
- Laminating may be expensive, but it does protect the poster, and usually improves its appearance.
- Acknowledgements and references are not part of the story you are telling visually, so these can be relegated to a bottom corner, in smaller print. Anyone who is interested can come close to the poster to check these.
- Use your spell-check, just as you would for an essay. Any misspelling is going to be visible and embarrassing.

Review/Critique

Introduction or Purpose

- A review or critique critically examines, analyses and comments on major points of the subject in an organised manner.

Formatting and Style

- Title
  The Body
  Reference List

Presentation Guidelines

- **Title**
  The title of a review or critique must include the author and title (and any other relevant details) of the item being reviewed.

- **The Body**
- The body of the review will depend greatly on your discipline and on your lecturer's requirements. Most reviews include enough information for a reader to make sense of the review without having to read the reviewed item itself. However, a review is not a summary, and one would normally not describe any part of the content unless to comment on it.

- **Reference List**
- The reference list must give the full bibliographic details of the item being reviewed. It should also give those for other reviews consulted and for items with which you have compared the item under review, etc.

Reports Business/General

Introduction or Purpose

- Reports are a common means of communication in many organisations. Always determine the purpose before beginning a report. Reports are created in response to a demand and the topic or subject of the report should be clear.
- Consider the intention behind the report. Clarify whether it is meant to:
- inform its audience
- interpret a particular issue
- recommend solutions
- persuade its audience
- or all or some of the above.
-
- Business Students are required to write reports. While it is the formal Business Report Style that is described in this section this style could also be used in other areas.

- Types of business reports range from brief informally structured, to detailed formally designed documents. A formal report is normally expected by senior management after an in-depth investigation into, or analysis of, an existing or proposed area of business activity.

Formatting and Style

- The following list shows the report components in the generally accepted sequence.

Cover letter
Title page
Summary (Executive Summary)
Table of contents
Introduction
Discussion
Conclusion
Recommendations
References
Appendices

Presentation Guidelines

- Cover letter

The cover letter, addressed to the recipient(s) of the report, facilitates transmission and typically invites further enquiry. It should be brief and is not meant to be a report summary. The letter should be paper-clipped to the outside of the report's front cover.

- Title Page

The title page contains four main elements.

- The full title of the report.
- The name of the organisation and sometimes the person for whom the report the report is prepared.
- The name of the originating organsation and sometimes the name of the person who has written the report.
- The date the report is issued and a report number if necessary.

- **Summary**
  The summary should briefly outline the purpose of the study and the highlights, findings and recommendations. It should be centered on a separate page and should always precede the table of contents. It is a key section of the report and care should be taken to make it informative to intended readers.

- **Table of Contents**

The table of contents helps readers to locate specific information, shows the topics that have been covered and how the information has been organised. Every **major** topic heading in the report must be shown and worded exactly as in the report. All appendices must be listed, and if drawings or illustrations are grouped separately in the report they should also be listed in the Table of Contents section. Page numbers must be shown against each heading.

- **Introduction**
  The introduction includes three main components.

- The **background**, describing the current situation and the events leading to it.
- The **purpose**, defining what is to be achieved by the study, who authorised it, and any specific terms of reference.
- The **scope**, indicating the depth of study and any limitations imposed on it.

- **Discussion**
  The discussion is the term used to describe the body of the report in which a number of different topics may be addressed. Sections and sub-sections should be ordered logically. The word 'discussion' should not be used as a single word heading nor generally as part of a heading.

  Within the discussion section various aspects of the study or investigation may be addressed separately without final conclusions being drawn. Alternative courses of action, methods or solution may be explored without definite recommendations being made.

- **Conclusion**
  The conclusion section provides a summary or summing-up of the outcome of the discussion. The conclusions should be stated briefly, presented in descending order of importance, satisfy requirements established in the introduction, and never advocate action. If there are many subsidiary conclusions, they can be presented in point form.

- **Recommendations**
  The recommendations section is a key part of the formal report, because it provides management with suggested courses of action to pursue or approaches to adopt. Recommendations should be strong and advocate actions, satisfy requirements established in the introduction, and follow naturally from the conclusions. They should be offered in descending order of importance, or in chronological sequence if one recommendation naturally follows another. Where several recommendations are being made, point form presentation is acceptable, as long as meaning is not diminished.

- **References**
  The references section should list all the information sources the report writer used. Guidelines for preparation of reference lists are included within each of the four chapters of the Assignment Manual which deal with referencing systems.

- **Appendices (or an appendix)**

The appendices contain complex analyses, statistics, large diagrams and illustrations, test results and generally any information which, if included in the discussion sections, would interrupt reading continuity. Often the appendix will contain detailed information to support what is stated more briefly in the discussion. Appendices are always presented in the order in which they are first referred to in the report.

Each appendix is assigned an identifying letter such as 'Appendix A' or 'Appendix B'.

Note: While each section of the report is given a separate heading it is usual practice to also assign sequential sub -section numbers as is shown in the following example:

1. INTRODUCTION

1.1.....)
1.2.....)
)Insert

2. .....)appropriate
2.1.....)headings
2.1.1.....)and sub-
2.2.....)headings
2.2.1.....)

The section numbers **and** corresponding page numbers should always be shown in the table of contents.

- The information regarding the preparation of business reports has been drawn from:

Blicq, R.S. (1987) *Writing reports to get results.* New York: Institute of Electrical and Electronic Engineers Inc.

- It is recommended that this reference or others listed in the Assignment Manual bibliography be consulted where further information on any aspect of formal report writing is required.

Reports – Scientific Laboratory Reports

Introduction or Purpose

- It is just as important to know how to write a report using scientific format and style, as understanding the laboratory experimental exercise. Remember that whether a laboratory experimental exercise worked as planned or was a dismal failure, a good report can still be written.

Formatting and Style

- The components of a Scientific Laboratory Report will be those of a standard scientific paper. The lecturer or demonstrator should be consulted for specific requirements or preferences for each particular subject. (Psychology students should also see Chapter 4 for APA style requirements). A typical report might include:

- Title page
  Abstract (Synopsis or Executive Summary)
  Introduction including aim
  Methods
  Results
  Discussion
  References
  Appendices.

Presentation Guidelines

- For the **title page** follow the format outlined in the section General Physical Presentation (p.15).

- **Abstract**
  The abstract (see Glossary, p. 89) is a self-contained summary of the report. Its purpose is to inform the reader about the contents of the report. The abstract is generally the last section of the report to be written. It should not contain any information that is not located in the body of the report. It should concisely state in the past tense:

  - a statement introducing the subject matter
  - a statement of what was done
  - a statement of **important** results and conclusions, without discussion.

- **Introduction**
  The introduction should state the general problem being investigated and why it is of importance. It should state the aims of the exercise and the methods used. It should introduce the reader to the basic concepts that are involved in the discussion. The laboratory manual should not be your only source. Relevant facts from the scientific literature should be selected and cited.

- **Methods**
  The methods section specifies what materials were used and what was done with them. It should briefly describe the method used and any deviations from the cited methods. It is not appropriate to copy instructions from the laboratory manual directly into the report.

- **Results**

  The results section states fluently the trends in results without discussion. The description should be readable without the tables and figures, but be complemented by them. Start this section by describing the most important results, if there are several. Describe the overall results, not each separate measurement, except where unusual data points occur. Do not present in this section all the raw data, but only processed information. The results section is a written section not just a collection of tables or figures.

Tables and figures should be titled fully and correctly, be self-supporting, and be displayed immediately after their first mention in the written section.

Tables and figures may be placed on separate pages if there are no facilities for integrating them into the text.

- **Discussion**
  The discussion section should not restate results. It should discuss whether the results agree or disagree with published literature, state any assumptions made and also state the important sources of error. Then it should state any main conclusions or recommendations that can be made logically based upon the results. Beware of making unsupported claims and be sure to distinguish fact from opinion.
- **References**
  The references section should list in full detail all references cited in the report. Guidelines for preparation of reference lists are included within each of the four chapters of the Assignment Manual which deal with referencing systems.
- **Appendices**
  The appendices should contain all information that is not of **direct** importance, such as tables of raw data, figures not described, sample calculations, brochures, specification sheets and statistical tables.
- Additional Readings on Scientific Report Writing
- There are many different styles of scientific laboratory reports and books are available in the library on how to write successful reports such as:
- Lindsay, D. (1984) *A guide to scientific writing.* Melbourne: Longman Cheshire.
- Lobban C.S. and Schefter M. (1992) *Successful lab reports: a manual for scientific students.* Cambridge: Cambridge University Press.
- Other references are also listed in the Bibliography of this Assignment Manual.