

Assessment Title	Group Pipeline Project - Individual Report
Learning Outcomes	1 – 3
Assessment Task	<p>This project requires you to apply appropriate bioinformatics methodologies and techniques on a specific topic/problem related to bioinformatics data acquisition, data management, quality appraisals, analytics and visualisation and data deposition at a repository, etc. You should examine the requirements, formulate solution, and implement your solution in the form of a pipeline development in Bash, R or Python markdown. Finally, you must present all your work and results in a written technical report (individually).</p> <p>Project Topic</p> <ol style="list-style-type: none"> Design and develop bespoke pipeline algorithm to perform any of the following bioinformatics data acquisition, data management, quality appraisals, data analysis, data visualisation and or data deposition at a

	<p>repository.</p> <ol style="list-style-type: none"> Write an individual report for the group project – your report should focus on your contribution to the overall pipeline and findings from your group experiment. Write the data your group used into the pipeline as a .system file, make the data available in your github account – your pipeline will be checked with the data Submit the overall pipeline as an appendix to your report <p>Students need to form a group of 3 – 5 members only</p> <p>The Group needs to;</p> <ol style="list-style-type: none"> Justify the project <ol style="list-style-type: none"> Identify a disease, condition or subject of interest Perform research on the subject topic, identify project goal and analyses requirements Design your Study <ol style="list-style-type: none"> Design the technical solutions, i.e., step by step protocol for, e.g. search and collecting data (public datasets), analysing and preparing data. Choose appropriate python or R packages to develop the algorithms and apply them to your project. Conduct your Experiment: <ol style="list-style-type: none"> Run your pipeline in Bash, R or Python as appropriate Analyse the results and interpret the findings Examine the findings in the context of published work Submit your as Bash, R or Python markdown <p>NB: This is a group project but you provide individual reports</p> <p>Reporting your work</p> <ol style="list-style-type: none"> Use the following structure to report your work to a publishable standard Cover page: state the project title, your name and student ID, and the names and IDs of students in your group. State your major contribution to the group work, and a brief reflection of your contribution to the group work Introduction: introduce the topic of the investigation and provide necessary background in the context of assessment criteria to justify why the experiment was worth doing. Cite all sources. Product and implementation: describe the technical detail of the techniques and procedures you used to design, developed and deploy the product (Pipeline), justify the appropriateness of models/algorithms/techniques used, explain software deployment and implementation. Reference all appropriate literature. Outputs: describe experiments conducted, presenting experimental results properly (e.g. practice of data visualisation where appropriate)
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report (individually).

Project Topic

1. Design and develop bespoke pipeline algorithm to perform any of the following bioinformatics data acquisition, data management, quality appraisals, data analysis, data visualisation and or data deposition at a

repository.

2. Write an individual report for the group project – your report should focus on your contribution to the overall pipeline and findings from your group experiment.
3. Write the data your group used into the pipeline as a .system file, make the data available in your github account – your pipeline will be checked with the data
4. Submit the overall pipeline as an appendix to your report

Students need to form a group of 3 – 5 members only

The Group needs to;

5. Justify the project
 - a. Identify a disease, condition or subject of interest
 - b. Perform research on the subject topic, identify project goal and analyses requirements
6. Design your Study
 - a. Design the technical solutions, i.e., step by step protocol for, e.g. search and collecting data (public datasets), analysing and preparing data.
 - b. Choose appropriate python or R packages to develop the algorithms and apply them to your project.
7. Conduct your Experiment:
 - a. Run your pipeline in Bash, R or Python as appropriate
 - b. Analyse the results and interpret the findings
 - c. Examine the findings in the context of published work
 - d. Submit your as Bash, R or Python markdown

NB: This is a group project but you provide individual reports

Reporting your work

1. Use the following structure to report your work to a publishable standard
2. **Cover page:** state the project title, your name and student ID, and the names and IDs of students in your group. State your major contribution to the group work, and a brief reflection of your contribution to the group work
3. **Introduction:** introduce the topic of the investigation and provide necessary background in the context of assessment criteria to justify why the experiment was worth doing. Cite all sources.
4. **Product and implementation:** describe the technical detail of the techniques and procedures you used to design, developed and deploy the product (Pipeline), justify the appropriateness of models/algorithms/techniques used, explain software deployment and implementation. Reference all appropriate literature.
5. **Outputs:** describe experiments conducted, presenting experimental results properly (e.g. practice of data visualisation where appropriate)

6. **Technical Analysis:** analyse the experimental outputs, provide critical technical explanations of the product, identify weaknesses and suggest possible improvement, etc.
7. **Conclusions:** summarise the investigation, state the conclusions that the results and analysis showed, along with suggestions of potential future work.
8. **Reference:** generate a reference list for all the literature cited in your report.
9. **Appendix or Supplemental Materials:** provide algorithm codes you developed or used, large tables and figures, detail gene list, etc. from your experiments. It is important to cross-reference correctly all items include in this section

Word Limit	Type	Weighting	Due
2000	Group Written Report	40%	05-May-22