MACQUARIE UNIVERSITY INTERNATIONAL COLLEGE
ASSESSMENT-2
Introduction to Computer Programming (WCOM115)

ASSESSMENT DETAILS

| Unit Name:	Introduction to Computer Programming		Unit Code:	WCOM115
Assessment Task:	Assignment 2		Term & Year:	T1, 2018
Total # Pages:	4	Total Marks:	100	Weighting:	20%
Check point Due	Week 6, Monday (12/3/2018), 23:45			
Final submission Due:	Week 6, Wednesday (14/3/2018) 23:45			

INSTRUCTIONS

Write a Processing program that meets the following requirements. Sample output is on iLearn.
Note: You need to use as many defined function as you can. Also, you need to use ALL what you learnt in WCOM115. Please do not use extra coding aspects such as classes, object,…

TASK A (40 marks)
1. Display a window of size 400 by 400 with a blueish background (like **space,** yep space is blue).
2. There is a part of an ellipse appears at the bottom of the windows as if it is the earth from far away.
3. In the space, there is a yellow **sun** with diameter 25, the sun has a yellow glow with diameter 50.
4. In the centre of the window, there are 5 concentric orbits (circular tracks).
5. On each orbit, there is an ellipse (a planet) the rotate at different speed and they have different random starting points.
6. The planets should have random speed, angle, colour and direction

Note: to get the marks of this task you have to use arrays to store x and y coordinate of the orbits, orbits diameters, x and y coordinate of each planet, the angle, the speed and the direction of each planet.
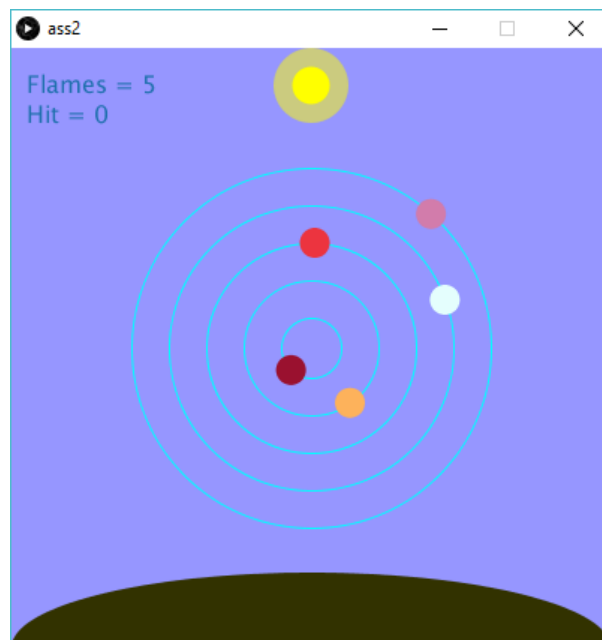
TASK B (20 marks)
7. Initially the sun will have 5 flames and did not hit any planet, this should be shown in the upper left corner as Flame=5 and Hit =0.
8. When left key is pressed, the sun will move left, while if the right key is pressed the sun will move to the right. The movement will be one pixel at a time but not getting out of the window.
9. When down key is pressed, a small oval (flame) will come out from wherever the sun is and the flame will move downward. The flame counter should decrease by one.

TASK C (25 marks)
10. On its way downward, when the flame hits any planet, the hit counter should increase by one. The flame may hit more than one planet in the way, yet it is considered one hit.
11. When the flame touches any planet, the planet should have a momentum fill red colour (whatever its original random colour), then the planet should disappear forever.

TASK D (15 marks)
12. The game should be over when either the sun ran out of flames (flame=0) or there is no more planet to hit (planet count =0). The Final statistics about the remaining number of flames, the remaining number of planets, the number of hits should be shown at the last screen.

Please Note: It is expected that each task should be done in a separate function

NATURE OF THE TASK
This is an individual task.

HURDLE ASSESSMENTS
This is NOT a hurdle assessment.

MATERIALS REQUIRED / SUGGESTED RESOURCES
All the materials taught in the lessons from week 1 to week 6

HOW TO PRESENT YOUR ASSIGNMENT
Name your file as *ass2_12345678.pde* where 12345678 is your student ID. In the first line of the file, add your name and ID as a comment. For example, //John Smith, 12345678

10% penalty for not having proper file name.

Submit the processing source code (.pde) file on iLearn under assignment 2.

SUBMISSION INSTRUCTIONS
Submit the source file *ass2_12345678.pde* on iLearn under Assignment 2 Submission.

LATE SUBMISSIONS
Late submissions are possible and will be penalised at 20% of assignment total mark per day up to 4 days (weekend inclusive).
If a student submits an assessment 5 or more days a after the due date without grounds for special consideration (See Special Consideration Policy) a record or submission will be made but the student will receive zero marks for the assessment task.

RETENTION OF RECORDS
Student are required to keep a copy of all items submitted or completed for the purpose of assessment or evaluation until the end of the grade appeal period.

INFORMATION ABOUT HOW AND WHEN FEEDBACK WILL BE PROVIDED
Marks and feedback will be provided via iLearn.

ACADEMIC HONESTY

Using the work or ideas of another person, whether intentionally or not, and presenting them as your own without clear acknowledgement of the source is called Plagiarism.

Macquarie University promotes awareness of information ethics through its Academic Honesty Policy. This means that:

- all academic work claimed as original must be the work of the person making the claim
- all academic collaborations of any kind must be acknowledged
- academic work must not be falsified in any way
- when the ideas of others are used, these ideas must be acknowledged appropriately.

All breaches of the Academic Honesty Policy are serious and penalties apply. Students should be aware that they may fail an assessment task, a unit or even be excluded from the University for breaching the Academic Honesty Policy.

EXPECTATIONS OF STUDENTS

Students are responsible for their learning and are expected to:

- actively engage with assessment tasks, including carefully reading the guidance provided, understanding criteria, spending sufficient time on the task and submitting work on time; Read, reflect and act on feedback provided;
- Actively engage in activities designed to develop assessment literacy, including taking the initiative where appropriate (e.g. seeking clarification or advice, negotiating learning contracts, developing grading criteria and rubrics);
- Provide constructive feedback on assessment processes and tasks through student feedback mechanisms (e.g. student surveys, suggestions for future offerings, student representation on committees);
- Ensure that their work is their own; and
- Be familiar with University policy and faculty procedures and act in accordance with those
- policy and procedures.

MARKING CRITERIA
You will be assessed according to the criteria provided below.

Marking Criteria	Mark
TASK A	
Correct window size, background, sun and earth	5
There are 5 concentric orbits (using array(s))	5
There are 5 ellipses (planets) rotating on the concentric orbits	5
The planets start with different/random starting points, speed, colour and direction	10
The 5 planets are created using at least FIVE arrays (coordinates, speed, colour, direction).	10
Initialising the arrays where done in a function(s) and not in one of the default functions (i.e. setup, draw, mousePressed…)	5
TASK B	
When the keys LEFT or RIGHT pressed the sun moves horizontally accordingly	5
When DOWN key is pressed a small oval (flame) will come out from wherever the sun, heading downward	10
The counter of flames will change(decrease) accordingly	5
TASK C	
When a flame collides with a planet, planet colour changes	5
When a flame collides with a planet, hit counter increases by one	5
When a flame collides with a planet, the hit planet disappears	5
Collision detection is done in a defined function(s) and not in one of the default functions	10
TASK D	
When either the flames =0 or the number of planet =0, the game over	2
The final statistics shows flames number, hits number, and the number of planets left is displayed	3
Checking the correct game over conditions and/or the statistics displayed are done using defined function(s) and not in one of the default functions	10

Penalties for code style:

Your code should be styled well. This includes, there is up to 15% penalty for not following the code style (5% for each aspect of the following).
  a) **commenting: should be sufficient without being excessive and assist reader in understanding code**
  b) **indentation: code should be indented consistently using C-style indentation or Java-style indentation (but not a mix)**
  c) **variable/function naming: variables should be named using C-style convention (underscore separated) or Java-style convention (camel Casing) (but not a mix). Variable names must clearly convey their purpose. For each aspect of coding style,**