TEMASEK POLYTECHNIC
TEMASEK INFORMATION TECHNOLOGY SCHOOL
DIPLOMA IN INTERNET COMPUTING
ADVANCED MULTIMEDIA DEVELOPMENT
AY 2004/2005, Year 2 Semester 1

Project 2

Introduction:
Students are required to complete interactive multimedia project developed in Flash ActionScript. There are two main categories of choice for this project. Students can choose to do either an Interactive Game project, or an Interactive Digital Book project.

Project Objectives:
- To provide proper design and planning for the Digital Book or the Interactive Game.
- To incorporate the different multimedia elements in the Application.
- To create interactivity using Macromedia Flash and ActionScript
- To create a interactive Flash Application
- To manipulate the multimedia elements using ActionScript programming language.

Project Components

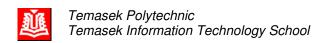|		
Project 2 Prototype Submission	15%	Week 11, Lab
Project 2 Final Submission	35%	Week 14
Project 2 Presentation		Week 14 (Presentation of Project Work)
Project Tests (During Lectures)	10%	Week 1 to Week 14

Joint Project
The AMMD project 2 software is for the "Leisure Corner" of the UID final project.
The AMMD project and UID project forms the same website. They use the same "Creative Design and Layout Ideas", and should have the same "Visual Impact". Such common features are to be assessed and reflected in the marking schemes of the 2 projects.

Project Description
Students can choose between the 2 categories.
        Category 1:   Interactive Digital Book
        Category 2:   Interactive Game

Category 1:   Interactive Digital Book
It is technically **easier** to attempt the Digital Book project than to attempt the Interactive Game Project. Although an **A** grade for this category is possible a **B** grade is more likely for a good submission.

Who should choose the Digital Book option?
- Students who find difficulty coping with the complexity of game programming, or
- Students who are working toward a grade of **B** or **C** for the subject.

Category 2:   Interactive Game
It is technically more challenging to attempt an Interactive Game project than to attempt a Digital Book Project. For students who have strong grasp of programming and ActionScript, and/or are keen in developing games, they are encouraged choose an Interactive Game Project.

Who should choose the Interactive Game option?
- Students who are interested in developing interactive games, or
- Students who are strong in programming and ActionScript, or
- Students who aims to get an **A** or **Distinction** for the subject.

During week 11, Project 2 **Prototype** Submission, students who choose Category 2 (Game), must be able to produce a working game skeleton. (And explain / defend the basic game design / codes) If a student fails to do so, he/she will be asked to **switch to Category 1** (Digital Book).
Students can choose to switch to Category 1 during week 11.

Students are strongly encouraged to attempt the game project first, as it is a challenging and enriching experience.

Category 1: Interactive Digital Book

Follow the UID project topic (subject matter) and expand on the subject matter. You are required to choose a particular **hardcopy book (with lots of pictures)** and translate it to a Digital Book. You will need to think of a particular goal and objective to communicate to your target audience (which should be the original goal and objective of the hardcopy book, it can be different if you have good reasons for it).
Effective use of advanced Flash animation techniques and ActionScript are encouraged (marks awarded).

IMPORTANT:- (Digital Book)
All **graphics** media elements **must** be from the original hardcopy book (scan and edit). No graphics from the Web.
You can use sound/music files from the Web, but you must **acknowledge** the source in both program and report.

Must-have features for the Digital Book
- Narrative background sound element
- Synchronised sound element with image/text elements
- Interactivity, e.g. When users click on (or interact to) the Digital Book, something happens to illustrate certain ideas from the book.
- CBL (computer based learning) element. Teaching or assessing users certain ideas / knowledge gained from the book.
- The original storyboard must be similar to the final output.
- The original objectives / target audience must tally with the final output.
- The original hardcopy book must be shown during project prototype submission.
- The project prototype and the final project work content must be comparable and related.

Category 2: Interactive Game

IMPORTANT:- (Game)
All **graphics** media elements **must** be original (scan and edit; or create). No graphics from the Web.
You can use sound/music files from the Web, but you must **acknowledge** the source in both program and report.

Choose one of the following game topics listed below.
Note: All game designs are to be related to the UID project topic.
e.g. If your UID topic is "Gundam" and AMMD game is "Car Race", the game should perhaps be designed to have Gundam robot racing against each other.
e.g. If your UID topic is "Shoes" and AMMD game is "Snake", the game should perhaps be designed to have snakes made by shoes.
These are just suggestions, please generate creative ideas and use your imagination.

No	Game Titles/Topics	Difficulty Level (1 to 5) (1 = easy; 5 = difficult)
1	Sokoban	6 (>5)
2	Snake and ladder	3
3	Lunar Lander	3
4	Deep Diver	4
5	Bomberman	6 (>5)
6	Pacman	5
7	Busy Body	2
8	Snake	4
9	Frogger	3
10	Reversi (for 2 players)	4
11	Car/boat/plane… Race (top / bottom, vertical)	3
12	Car/boat/plane… Race (left / right, horizontal)	3
13	Mario Brothers	5
14	Space Fighter (Street Fighter Style Game)	3
15	Bat Bomber	3.5

16	Bubble Puzzle	6 (>5)
17	Plane/boat/car Shooting (left / right, horizontal)	3
18	Fighter Plane "1941"	4
19	Plane/boat/car Shooting (360 degrees)	5
20	Cannon Shoot (cannon ball projectile calculation)	4
21	Submarine	3
22	Battleship	3
23	Tank War	4.5
24	Wheel of Fortune	4
25	Teach children alphabets (A, B, C …)	2.5
26	Teach children basic shapes (square, circle …)	2.5
27	Teach children colour (red, blue, green…)	2.5
28	Teach children objects (related to UID topic)	2.5

IMPORTANT:- (Interactive Game)
Students from the same practical class **cannot** choose identical topic.
Topic Selection is done on a **first-come-first-serve** basis.
Students cannot change game topic (once the choices are made)

Must-have features for the Interactive game
- The game must satisfy the basic game rules (provided in the next section game no 1 to 9 only; or to be designed by students).
- (Background) sound effects
- Interactivity, e.g. When users use mouse or keyboard (or anything else) to interactive with the game, something must happens in the game to give users response.
- The original storyboard must be similar to the final output.
- The project prototype and the final project work content must be comparable and related.
- Students must be able to explain/present/defend their codes/game design ideas during the final project presentation.

Basic Game Rules
1. Sokoban
    The object of the game is to push boxes (or balls) into their correct position in a crowded warehouse with a minimal number of pushes and moves. The boxes can only be pushed, never pulled, and only one can be pushed at a time. It sounds easy, but the levels range from very easy to extremely difficult, some takes hours and even days to figure out. Control with arrow key. Produce a maximum of 3 puzzles (levels).

2. Snake and ladder
    At least two players (one can be automated by computer). Every steps taken for the chip must be visible or animated; for example if the dice throw a value of 5 then the chip should be seen moving to the next square on the board 5 times. If the chip lands on the top of a snake, chip must be animated to slide down the snake. Similarly,

climbing the ladder should be animated. You may want to be creative in using something else in place of the chip. (At every new level the user are required to do a quiz.)

3. Lunar Lander
   A spacecraft controlled by the player is subjected to gravity. User controls up, left and right thrush engines to keep the craft from crashing too hard to any obstacles. Points awarded for objects picked up. Craft explode if it lands too hard and one play life is deducted. You get 3 extra landers. The craft have limited fuel at each mission.
   (Optional: Multilevel; more obstacles; more gravity; more rewards; more difficult)

4. Deep Diver
   A diver dives to sea bottom for pearls of oysters and/ or treasures. He must surface for air from time to time. Sharks and Giant Octopus are hazards. Scores points with the objects picked up only at the surface where the boat is waiting. Limited lives. Animation required.
   Optional: Multilevel - more hazards.

5. Bomberman
   Bomberman controlled by user moves around a maze and picks up bombs which can be used to blast open sections of the maze or set a booby trap for bad guys. Bomberman is required to pick up objects in order to access exit door of the maze. Points scored for bad guys killed and objects picked. Exit of maze scores point and take use to next level. 3 lives at start of game.

6. Pacman
   Classic Arcade game where smiley face eats up dots in a maze while avoiding 'ghost'. Ghost becomes vulnerable and can be attacked by user (smiley) when user eats one of the few special dots. Every dots eaten will score points. Attack on vulnerable ghost scores bonus and sends the ghost in the central box where the ghost remains trapped for a duration. Encounter with non-vulnerable ghost is deadly; reduces one life.
   (Multilevel; faster ghost and faster Smiley)

7. Busy Body
   Secretary works in a busy environment that is potentially hazardous to health. Player plays her role. She has to attend to many tasks that randomly crop up. Example of such tasks: - incoming telephone, emails, fax and documents for filing. Two separate values is maintained in the game - the score (starting at zero) and the health level (starting with 100). The secretary has only about a sec or two to attend to these task when they occur by clicking on the item. If she managed to attend (click) to the task on time she scores 1 point. But failing to attend, results in the reduction of health level by perhaps 10 or 20. At health level of 100 the secretary looks very beautiful and healthy. At lower health levels the looks of the secretary deteriorates accordingly. The secretary also have 3 different health restoring food, each restores different levels of health and each has a limited number. At the end of some time the game stop and we can see the score and health level. If the health level is greater than zero (she's not dead yet), she gets to go to the next level with full health. At least 3 levels. Frequency of random tasks increases at each new level.

8. Snake

   The popular handphone game found on the mobile phones. Make the snake grow longer by directing it to the food. You cannot stop the snake or make it go backwards. Death if snake heads into the walls or its own tail. (Multilevel- faster movement for the snake)

9. Frogger

   Frog (controlled by user) tries to get across hazardous road with heavy traffic and then across a river leaping from floating logs to floating logs. Frog dies when run over by vehicles or falls into the river. You start at the bottom of the screen and try to reach the top of the screen (some frog houses). The screen is divided into two sections, the bottom half and the top half, with a resting zone for the fog in the middle. In the first half of the screen, the frog tries to cross some highways avoiding being overrun by vehicles (moving in bands). The frog can rest at the resting zone for a while. (but there is a time limit for the fog to reach the houses) In the second half of the screen, the frog tries to cross the acid river by jumping onto floating objects moving in bands. It is a acid river, so frog dies if it falls off. Allow 3 lives, multilevel – more traffic, lesser logs / floating objects.

Media Content (for Digital Book and Interactive Game)

The original graphics files for sprites (e.g. *.png, *.jpg, *.gif), sound files and other media files need to be submitted together with the final product (in a separate /working directory). Students who are unable to produce the working files will face a penalty. (–30% of final project mark)

Marking Scheme

Refer to the subject web site for the assessment criteria.

Plagiarism Warning

No two students from this cohort should produce exactly **the same output/files** for this project. If such case/cases are found, **both** students will receive 0 mark. Both students will be handed over to the School Disciplinary Committee for further plagiarism investigation. (All program codes must be **original**. Any plagiarism case will be referred to the School Disciplinary Committee.)