

### Computer Graphics I, Project #1, A Drawing Panel

1. Design a basic drawing program which can draw some basic geometries and show texts. The drawing program should have a graphical user interface via which users can define colors, select geometry types, chose fonts, and draw objects.
2. 說明: The program opens a window and allows users to draw 2D objects with different **attributes** in the widow. The objects may be:
  - a、 Polygons, circles, lines, points, texts and other 2D objects.
3. Basic requirements (70%)
  - (a). Include **menus** in your program. (Hierarchical menus)
  - (b). Handle *keyboard*, *mouse*, *window* and *motion* events in your program.
  - (c). By using the menu system, the drawing program allows users to change colors, line width, point size, fill-mode,..., etc.
  - (d). By using the events, users can control the drawing, for example, defining vertex positions for polygons.
3. Advanced requirements: (40%)
  - (a) Save the contents of color buffer by using *idle* events (or timer).
  - (b) Copy the saved color buffer contents while a display event occurs.
  - (c) Allow users to save the color buffer. (15%)
  - (d) Allow users to type in strings. (5%)
  - (e) Draw grid-lines or scales to show positions and sizes of objects. (5%)
  - (f) Other fancy ideas are welcome. (15%)
4. You can modify our sample programs to create your drawing program.
5. Please write the manual of your program in A4 size papers and hand in the papers when demo your program. (要訂好，含心得、操作方法、特殊貢獻與其他有利於評分的資訊)
6. You have to demo your system in the Graphics Lab. Three weeks later.
7. No cheating! 助教會在 Demo 時，詢問程式內容與設計方法。