**Requirements Analysis**

This program requires me to design and write a system that will read in a set of compressed data and reproduce an ASCii art picture. There are a number of options that we need to take into account:- including the loading of files with both the picture and the compressed data; converting them as needed.

When the program is complete, the user should be able to load an ascii image and compress it using the technique of run-length-encoding. They should be able to load a file of RLE data and reproduce the ascii image. They should also be able to enter the RLE data one line at a time to create a new asci image.

**My Design Ideas**

**Task 1 will be to create a menu system allowing the following options:**

1. Enter RLE
2. Display ASCii art
3. Convert to ASCii art
4. Convert to RLE
5. Quit

…….. How will you achieve this menu system?

…….. draw a composition diagram for the system.

…….. design how the menu will look

**System Overview**

Menu

Enter RLE

Display Ascii art

Convert Ascii art

Convert RLE

Quit

**The menu**

Menu

Get User Choice

Handle Choice

Display Menu

**Task 2 – Making the Quit Option**

I will need to research how to exit a python program:

I think I will be able to write a separate procedure to handle the quit option – it would be good if the user was able to make a choice of whether to quit or not – so I could use an IF statement or a loop and IF statement to give them to option not to quit.

**Task 3 Entering RLE**

I will need to get input from the user.

I will need a variable to store the input of how many lines to enter – this will be an integer

I will need to use a loop to ensure the number of lines entered is more than 2

……..

……..

**Task 4 Display Ascii Art**

I need to be able to load a text file for this – again this may be something I need to research.

I need user input with the name of the file – this data type will be string because it will hold the name of the file.

**Task 5 Convert Ascii Art**

This is the file supplied by AQA which contains the compressed data to make the AQA logo art.

For this I need to be able to enter a filename and load that file – containing the RLE data

My program will need to read in the data and decompress it so that the image will be shown. I will need to be able to read in a line of data and convert this into uncompressed characters. To do this I need to be able to step through the line of data (string) reading each character.

The work I have done on String manipulation will be useful.

 After this the program will return to the menu

**Task 6 Convert RLE**

The picture on the left is the supplied file from AQA showing the ascii art.

This option will take an ASCii art image and convert it to a compressed data file.

The Ascii images are stored as plain text files

I need to read each line of the text file and compress it then store it back into a new text file

I then need to count the number of characters in each file and say how many have been saved by the compression.

I will need to read and write files as well as be able to count how many characters are in each.