Program 1

Age computation by using Carbon Percentage lost and Carbon-14 half life

Essential Equation : M(t) = k*2^(t/h)

After rearranging the equation and applying logarithm, we get

Object age = log10(present mass/100) / log10(0.5) * Half life of C-14

Half life of C-14 = 5730 years

Program structure:

Input : Amount of carbon-14 lost in object

I**nput validation :**
Amount of carbon-14 lost in object should be between 0-100

Input processing :
Convert amount of carbon lost(lostMass) to amount of carbon present (presentMass)

presentMass = 100 - lostMass

Compute age with the equation
(log10(presentMass/100.0)/log10(0.5) * halfLife)

Output:

Return age

For input beyond 100 or less than 0, Invalid Input

For input 0, output is ‘The object is 0.000000 years old.’

For input 100, output is ‘The object is infinite years old.’

Program 2

Steps to run in turbo C++

1. Autodetection of graphics driver and make sure the following path is right `C:/TURBOC3/BGI`

2. Initialize graphic mode and randomize() for random screen positions.

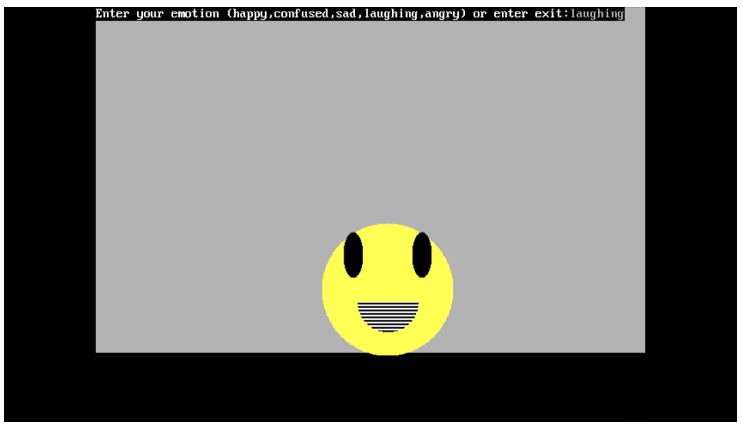
3. Set midx, midy and radius for the smiley

4. Initialise Infinite loop
   4.1 Get emotion from user (Happy,Sad,Confused,Laughing,Angry)
   Exit code : exit
   4.2 Convert input to lowercase
   4.3 Emotions
   - Confused :|
   - Sad :(
   - Happy :)
   - Laughing :D
   - Angry

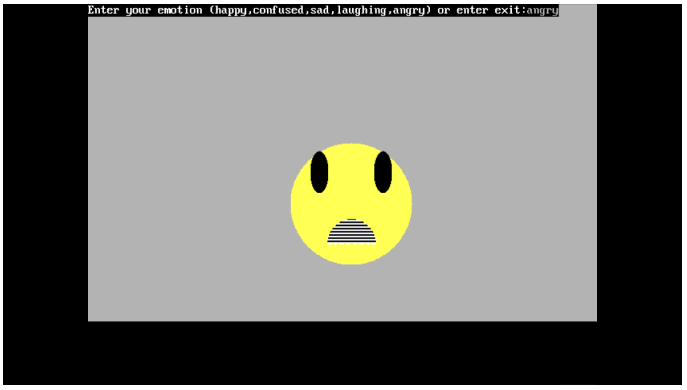
   Exit code : exit
   Return “Invalid input” for other cases

Each time a user enters an emotion , the emoji appears for one second at a random position on screen and then after 1 second, clears screen and awaits next input until exit code is entered.

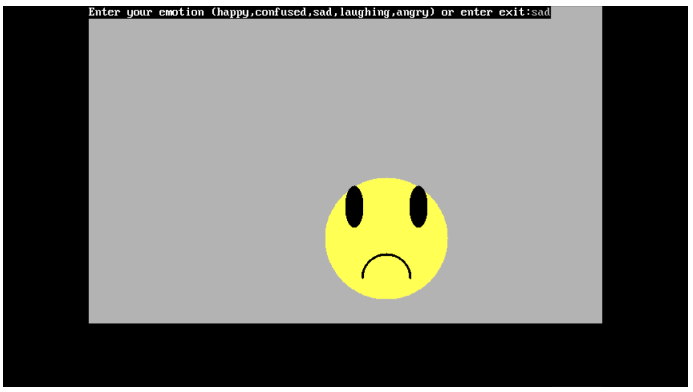
Laughing



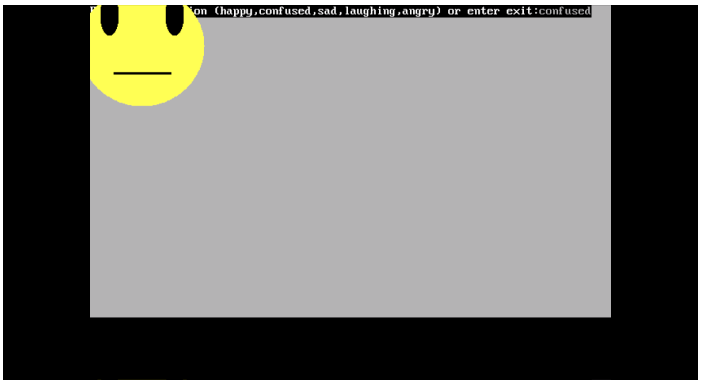
Angry



Sad



Confused



Happy