National University of Computer and Emerging Sciences

  
  
  
**COAL PROJECT REPORT**

SPRING’ 2018

**PROJECT:** IQ QUIZ GENERATOR & TESTER

**Group Members:**   
Osama Ejaz (K16-3920)   
Mohammad Hamza (K16-3940)  
Shahnihal Alwani (K16-3960)  
Maria Ahmed (K16-4058)

**Teacher:**Muhammad Danish Khan

**INTRODUCTION**

 Intelligent Quotient (IQ) tester is a questionnaire or series of exercises designed to measure intelligence. There are many types of intelligence tests, and they may measure learning and/or ability in a wide variety of areas and skills.

This project is about programming an Intelligent Quotient (IQ) tester which includes questions on different mathematical patterns and sequences. The project is made using concepts of Assembly Language.

**DESCRIPTION**

**(a) List of Mathematical Sequences:**

Following are the list & description of sequences generated in the program:

**-Triangular Number:** Sequence to build a triangle (1, 3, 6, 10, 15, 21…)  
**-Square Number:** Sequence to build a Square (4, 9, 16, 25, 36…)  
**-Cube Number:** Sequence of numbers generated when a number is multiplied 3  
 times (1, 8, 27, 64...)  
**-Oblong Number:** Sequence adding upper triangle with lower triangle (2, 6, 12,   
 20…)  
**-Pentagonal Number:** Sequence to build a Pentagon (1, 5, 12, 22…)  
**-Hexagonal Number:** Sequence to build a Hexagon (1, 6, 15, 28, 45…)  
**-Rectangular Number:** Sequence to build a rectangle (2, 6, 12, 20, 30…)  
**-Arithmetic Sequence:** Sequence where difference between the consecutive  
 terms is constant (5,7,9,11…)  
**-Geometric Sequence:** Sequence  where each number is multiplied by a  
 constant number randomly(3, 12, 48, 192…)  
**-Double Sequence:** Sequence with two different even & odd pattern (13, 6, 26,  
 12, 39, 18…)  
**-Neon Number:** Sum of digits of square of the number is equal to the number  
 (0,1,9)  
**-Fibonacci Series:** Series in which each number is the sum of the two preceding  
 numbers. (1, 1, 2, 3, 5, 8…)  
**-Composite Number:** Series of non-prime numbers (4,6,8,9…)  
**-Pedal Number:** Series with addition of constant number in difference  
 generating random numbers every time  
**-Prime Number:** Series of whole number greater than 1 whose only factors are 1  
 and itself (1,2,3,5…)  
**-Base Power:** Sequence where each number is multiplied by a number constant  
 (2, 10, 50, 250…)  
**-Multi Operation:** Sequence consisting of multiple operations of +,x,- respectively  
 (2, 4, 12, 8, 10…)   
-**Inc-Dec Sequence:** Reverse sequence where odd numbers are subtracting & a  
 constant number is adding (108, 103, 111, 104…)  
-**Complex Sequence:** Reverse sequence where arithmetic numbers are  
 subtracting (147, 143, 138,132…)  
-**Reverse Sequence:** Sequence where multiple of random natural number is  
 subtracting

**(b) Library & Functions:**

Main component of Assembly language used in the project is Irvine Assembly Library. Following are the functions from the library used in the project:

**-Delay:** Gives particular time for display **-RandomRange:** Generating random number within a range **-WriteDec/WriteChar/WriteString:** Output **-ReadDec:** User input **-Crlf:** Change line  **-GetMseconds:** Checks the given time limit of 60 seconds

**(c) Flow of Program:**

The program is executed in the following order:

1. Instructions for the users:  
   -20 questions  
   -Each correct answer awarded you with 1 point"

-'R' or 'W' stands for Right or Wrong respectively"

-Each question has 60 seconds to answer"

-After 60 second it will count wrong whether it’s Right or Wrong"

-Quiz will start automatically after 10 sec (Don't press any key)!"

1. 20 random sequences generated, containing a blank to guess the missing number & time limit of 60 seconds only.   
   For e.g. 1, 3,6,10, \_\_, 21, 28, …….  
   answer is 15. (after 60 seconds even right answer will be considered wrong too)  
   User will have to press enter after every sequence
2. Results of each question will be generated.  
   For e.g.   
   1. W   
   2. W  
   3. R
3. Score will appear after results.  
   For e.g.  
   Score: 1 (for above example)

