## Program Structures and Algorithms Spring 2023(SEC –8) Assignment 2

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## **Evidence of Unit Test Screenshots:**

## spreadsheet showing timing observations

В	С	D	E	F	G
	Quadratic		Quadrithmic		Cubic
	mSec		mSec		mSec
Raw time	6		3		8
Normalized	96		6.03		0.51
Raw time	4		5		26
Normalized	16		2.23		0.21
Raw time	13		15		173
Normalized	13		1.51		0.17
Raw time	22		59		1342
Normalized	5.5		1.35		0.17
Raw time	97		293		10779
Normalized	6.06		1.53		0.19
	Raw time Normalized Raw time Normalized Raw time Normalized Raw time Normalized Raw time	Raw time 6 Normalized 96 Raw time 4 Normalized 16 Raw time 13 Normalized 13 Raw time 22 Normalized 5.5 Raw time 97	Quadratic  mSec  Raw time 6 Normalized 96 Raw time 4 Normalized 16 Raw time 13 Normalized 13 Raw time 22 Normalized Raw time 22 Normalized 83 Raw time 97	Quadratic         Quadrithmic           mSec         mSec           Raw time         6         3           Normalized         96         6.03           Raw time         4         5           Normalized         16         2.23           Raw time         13         15           Normalized         13         1.51           Raw time         22         59           Normalized         5.5         1.35           Raw time         97         293	Quadratic         Quadrithmic           mSec         mSec           Raw time         6         3           Normalized         96         6.03           Raw time         4         5           Normalized         16         2.23           Raw time         13         15           Normalized         13         1.51           Raw time         22         59           Normalized         5.5         1.35           Raw time         97         293

## Why the quadratic method(s) work

In the quadratic method, it always get the middle index. Recording the sum of middle, we can know whether we should change the first sub-space or the third. Hence we can only iterator once for the whole array, that's why it cost less time than quadrithmic and cubic method.