

Statistical Analysis on Formative Assessment during COVID in Order to Emphasis on Future Generation

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Abstract

The world was affected by COVID-19. This has been a major role in the education. Online examination is called as e-exams and it is in beneficial state for the higher education in the worldwide. The process of conducting examination during pandemic period is a question mark in every body's heart and many institutions conducted their examination through the online mode. E- exams have given answer to the education world. It gave significant promise to the learners. This is the study about the e-exam conducted in the Indian educational organization. Only Multiple-Choice Question has been given for the evaluation. The automated system has evaluated the answer of the students and gave marks. The online examination is more efficient than the conventional paper-based exams. The overall efficiency of the grading and the time has been measured. It was concluded that online examination is more advantageous than conventional paper-based exams. The outcome also applies to the authenticity of grading and the overall efficiency concerning the time, effort, and expenditure on conducting the examination. The online examination is related with the formative assessment of learning. It provide authenticity, security and flexibility. The result of this study will be more helpful for the e-exams.

Keywords: Future Generation, Security and Flexibility, Statistical Analysis.

DOI: 10.47750/pnr.2022.13.S03.007

INTRODUCTION

In education, examination is used to test the knowledge and ability of a person. The person who is writing the examination is called as candidate. The Exam can be a written test, practical test etc., An achievement test is used to measure the skills and knowledge. It happens usually through the planned instruction. Training has been given to the students by training or classroom instruction. Usually Achievement test are the aptitude tests. Diagnostic test is used to measure the strength of the students, knowledge and skills and the weakness of the students. It is used to measure whether the objective of the course is achieved. It provides the individual learning experience. It is used to measure, whether the student is understanding the topic or not.

REVIEW OF LITERATURE

Online Learning

In 2004, various technologies has been implemented from like e-learning and web-based learning etc. In Ally (2004), When we see the definition of online learning, internet is used to access the learning material. Juan et al., (2011) refers about

the mathematics teachers and how they teach mathematics in online. It has significant effects on the higher education of mathematics. Whether students are learning off campus, online or distance learning. National Councils of teachers of mathematics (2000) says that, the teacher has to incorporate the technology to learn the mathematics, so that, it develops the higher order thinking for the students and they can understand the mathematic concepts easily. Maschietto and Trouche (2010) has included the technology tools in the mathematical library. Maschietto and Trouche (2010) has included the technology tools in the mathematical library. Webb (2005), describes that educational technologies support for mathematical learners. Many mathematics teachers are reluctant to use the technology in mathematics (Lin, Singer, & Ha, 2010). Flexible learning opportunity through online technology gives the good delivery method for higher education institutions (Allen et al., 2010). Flexible learning opportunity through online technology gives the good delivery method for higher education institutions (Allen et al., 2010). Faculty development program has to be conducted for increasing the technology. Many training like mentoring, question setting, technology tool development are given to

the faculty (Brema, 2010). Flexible learning opportunity through online technology gives the good delivery method for higher education institutions (Allen et al., 2010). Faculty development program has to be conducted for increasing the technology. There are many universities and colleagues in tamil nadu. India. During the pandemic period, every institutions have tried on their own to conduct the online examinations. This paper is mainly focus on the benefits of the Achievement test.

Online Examination

During the pandemic situation, Job security and health anxiety is affecting the students performance and experiences in this context. In this paper, they have focused on e-proctoring tools. This technology affect the students perceptions and testing outcomes (Milone et al. 2017). When they study about the e-proctoring systems, they would like to drop it, even though they find advantages while handling large number of students. The research work of Wesley et al., researched about the ten countries college students. (Wesley Schultz 2001). This study related about the self, other people and also relate with biosphere. Gloria and Ho (2003) has demonstrated the UG students psychological, environmental and social experiences. The performance of the academic is predicted by Self-efficacy, self-attitudes, and achievement expectancies. (Vayre and Vonthron 2019) has elaborated about the intra-individual psychological factors and relationship factors which affect during the exams. Privacy is very much significant in the e-learning systems (Majeed et al. 2016). Academic integrity is considered as the most critical issue in e-learning.. (Drew 2020) (Hollister and Berenson 2009). Students can able to cheat in the online exam. Rigorous monitoring is needed during the online examination.

Three hours has been given for writing the exam.

Mode of online exam:

Step 1: The teacher has been asked N questions.(more than 65)

Step2: The system will take 50 questions out of N questions.

Step 3: The time and date of the examination has been informed to the students.

Step 4: The students will participate in the exam through.

Step 5: The system will evaluate the students marks and grading will be given to the faculty

RESULT AND DISCUSSION

The result has been taken for two classes with same set of students for three semester. There are three semester has been taken, 2019-2020 ODD, 2020-2021 ODD, 2020-2021 EVEN Semester marks. The online examination results shows that, Most of the students got above 40 marks. Most of the students has finished their work within the one hour. There are some students has finished their exam within 60minutes to 120 minutes. The beginning of the COVID, the students took lot of time for finishing their exam. After one semester over, the students take only less time to finish their work. The average mark of teacher1 students value is increased from 80.08 to 83.33. The average mark of teacher2 value is also increased from 82.51 to 86. The average time is decreased from 56 minutes to 45 minutes for teacher1 and the average time of teacher2 is also decreased from 59 to 47.

METHODOLOGY

Mode of Offline Exam

The student will be given the exam time table. 9 questions have been given. Each questions carry 20 marks. Out of nine questions, five questions has to be answered by the students.

Teacher 1

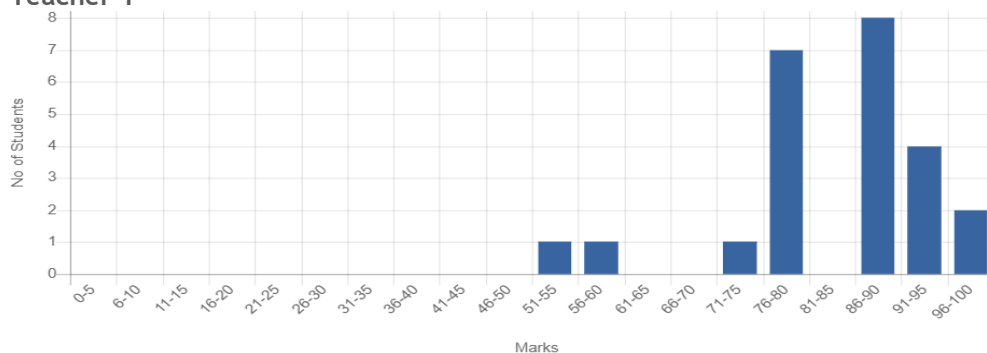


Fig. 1: Online exam 20-21 (Even Semester)

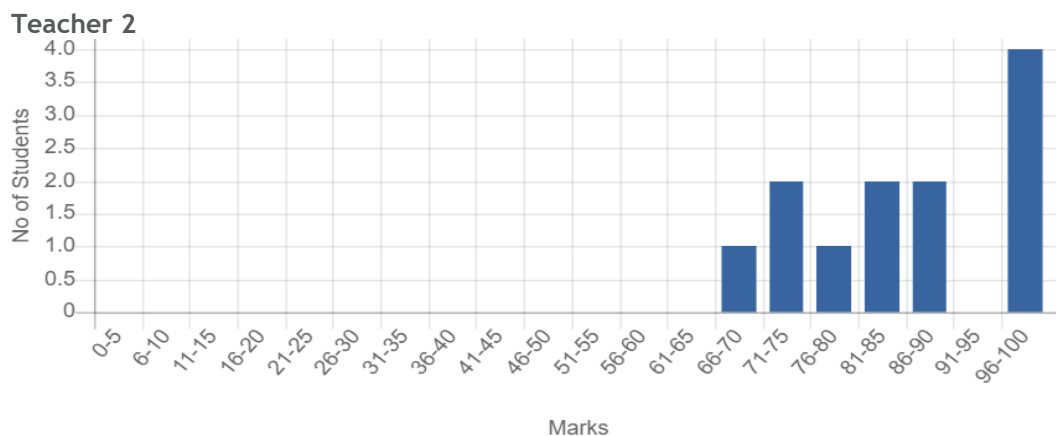


Fig. 2: Online exam 20-21 (Even Semester)-Teacher2

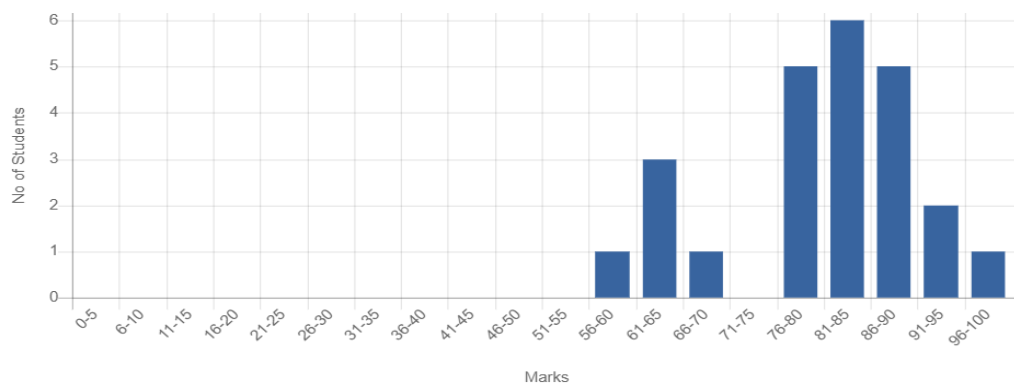


Fig. 3: Online exam 20-21 (ODD Semester)-Teacher2

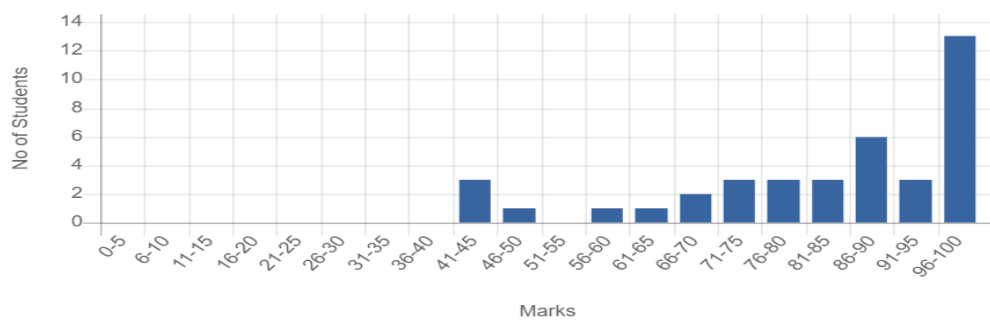


Fig. 4: 2020-2021(even semester) - Teacher1

Table 1: 2020-2021(even semester)- Statistical Analysis by Automated System

Teacher1	Teacher 2			
	20-21 (Even Semester)	20-21 (Odd Semester)	20-21(even semester)	20-21 (Odd Semester)
Students Appeared	24	24	12	39
Average	83.33	80.08	86	82.51
Standard Deviation	10.16	10.38	10.8	16.83
Median	86	83	84	88

Mode	86	84	100	96
Range	54 - 96	58-96	70-100	42-100

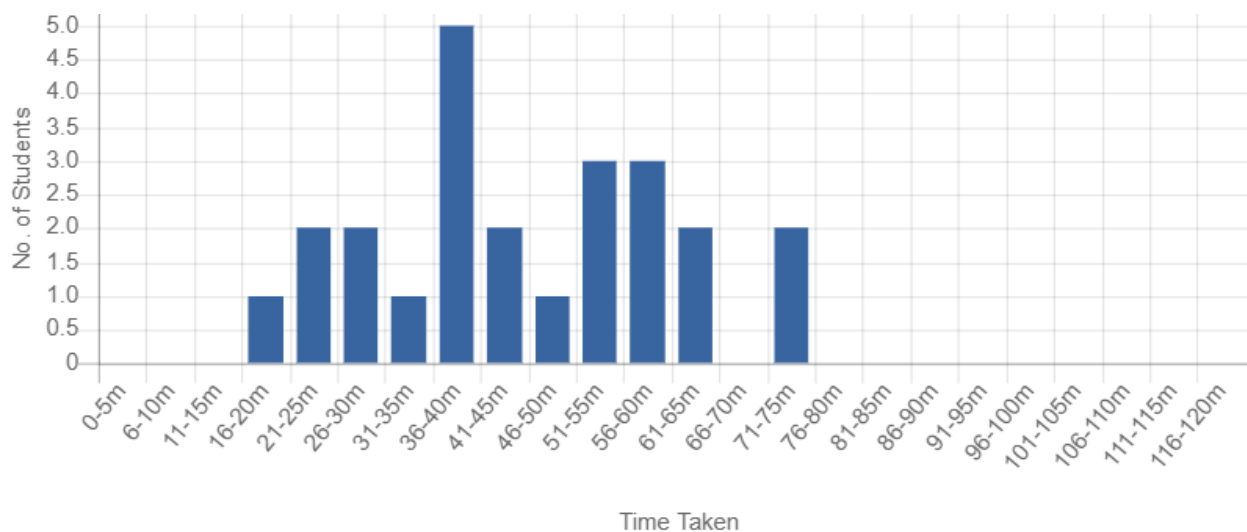


Fig. 5: Online exam 20-21 (Even Semester)- Time Taken- Teacher1

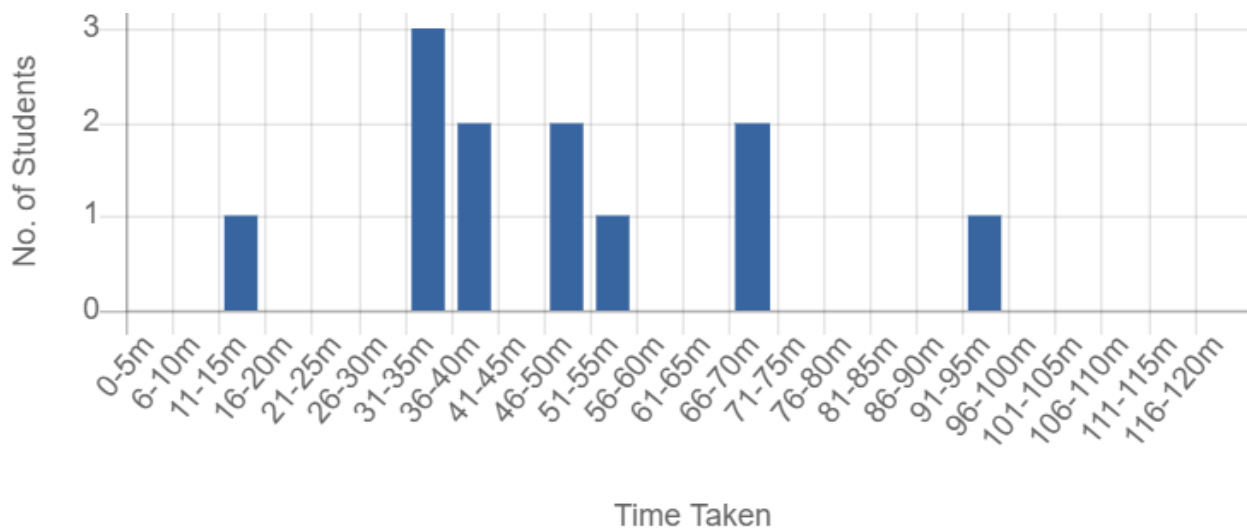


Fig. 6: Online exam 20-21 (Even Semester)- Time Taken- Teacher2

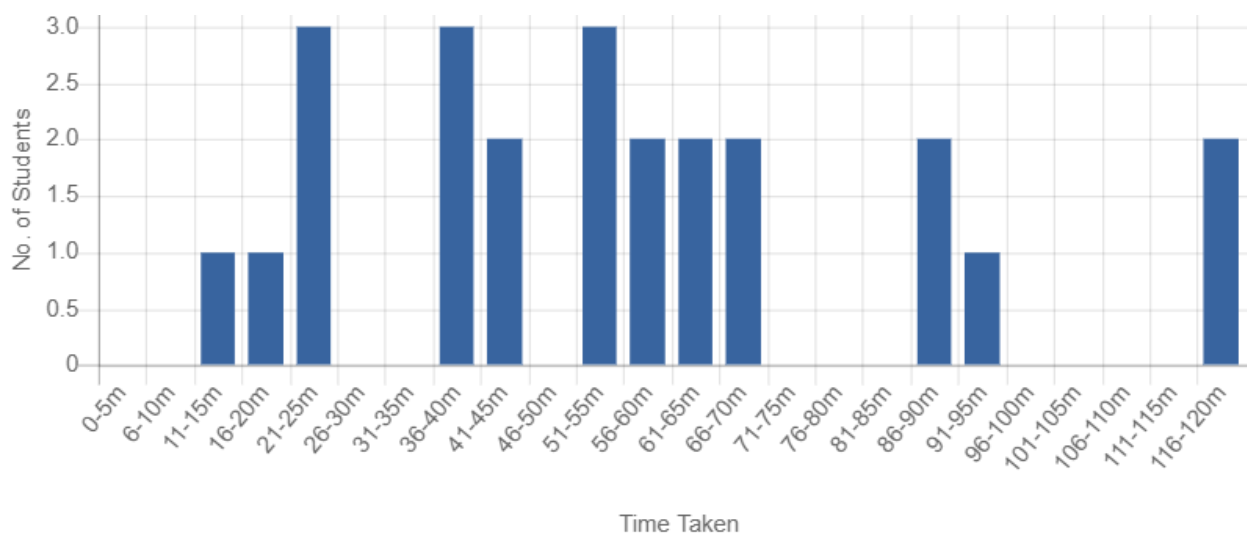


Fig. 7: End Semester 20-21 (ODD)- Time Taken- Teacher1

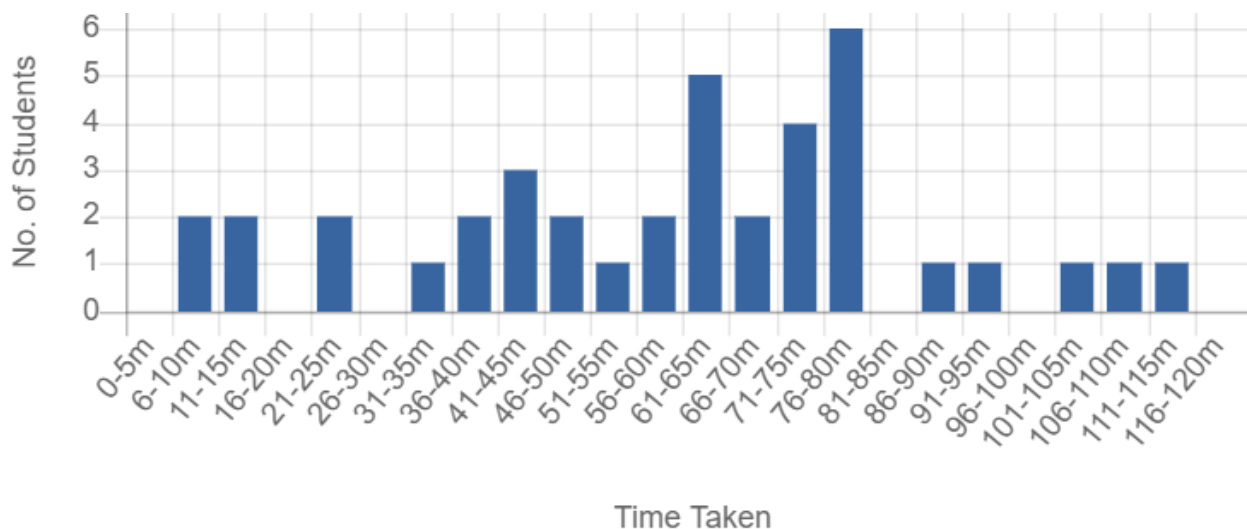


Fig. 8: End Semester 20-21 (ODD)- Time Taken- Teacher2

Table 2: 2020-2021(ODD semester)- Statistical Analysis by Automated System

Teacher1	Teacher1		Teacher1	
	Online		Online	
	20-21 (Even Semester)	20-21 (Odd Semester)	20-21 (Even Semester)	20-21 (Odd Semester)
Students Appeared	24	24	12	39
Average	00:45	00:56	00:47	00:59
Standard Deviation	00:14	00:28	00:20	00:26
Median	00:43	00:54	00:43	01:01
Mode	00:42	00:59	01:07	00:37
Range	00:17:49 - 01:12:47	00:15:09 - 02:00:00	00:11:21- 01:32:02	00:09:10 - 01:53:37

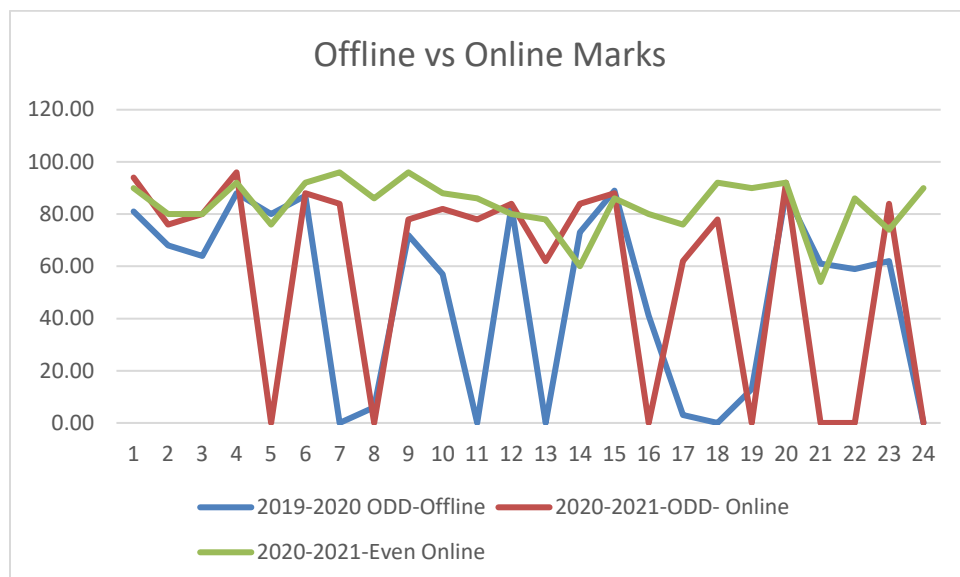


Fig. 9: Offline vs Online Marks

Formative (Online) vs Summative Assessment (Offline)

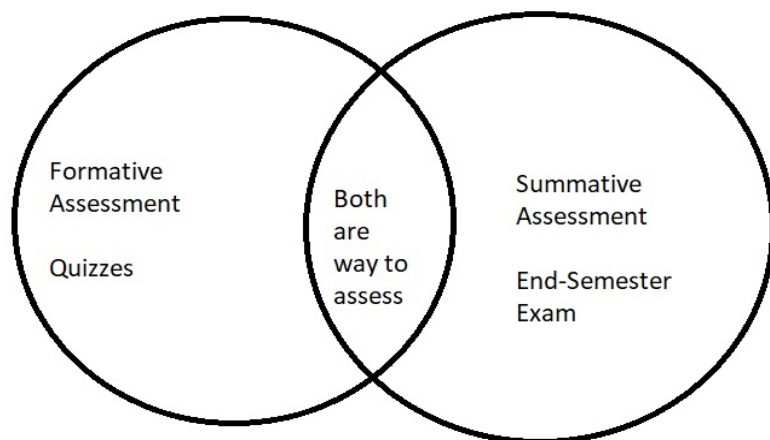


Table 3: Teacher1- Statistical Analysis of the Student Mark

2019-2020 ODD-Offline		2020-2021-ODD- Online		2020-2021-Even Online	
Column1		Column1		Column1	
Mean	48.95833	Mean	57.91667	Mean	83.33333
Standard Error	7.213735	Standard Error	7.913004	Standard Error	2.118472
Median	61.5	Median	78	Median	86
Mode	0	Mode	0	Mode	80
Standard Deviation	35.33994	Standard Deviation	38.76565	Standard Deviation	10.37835
Sample Variance	1248.911	Sample Variance	1502.775	Sample Variance	107.7101
Kurtosis	-1.56099	Kurtosis	-1.22058	Kurtosis	2.07502
Skewness	-0.45955	Skewness	-0.84477	Skewness	-1.36245
Range	89	Range	96	Range	42
Minimum	0	Minimum	0	Minimum	54
Maximum	89	Maximum	96	Maximum	96
Sum	1175	Sum	1390	Sum	2000
Count	24	Count	24	Count	24

Table 4: Teacher2- Statistical Analysis of the Student Mark.

2019-2020 odd offline		2020-2021-ODD- Online		2020-2021-Even Online	
Column1		Column1		Column1	
Mean	67.43333	Mean	86.68333	Mean	86.38333
Standard Error	1.256479	Standard Error	2.558081	Standard Error	2.06136
Median	69	Median	94.5	Median	93
Mode	67	Mode	98	Mode	96
Standard Deviation	9.732641	Standard Deviation	19.81481	Standard Deviation	15.96722
Sample Variance	94.72429	Sample Variance	392.6268	Sample Variance	254.9523
Kurtosis	1.015761	Kurtosis	6.197673	Kurtosis	7.117315
Skewness	-0.7016	Skewness	-2.50398	Skewness	-2.39329
Range	51	Range	86	Range	87
Minimum	35	Minimum	14	Minimum	13
Maximum	86	Maximum	100	Maximum	100
Sum	4046	Sum	5201	Sum	5183
Count	60	Count	60	Count	60

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