SELF ASSESSMENT REPORT (SAR)

2021–2022

Department of Statistics
Shah Abdul Latif University Khairpur

Program:

   1) BS- 4 Year   2)   MS/MPhil

Submitted to:

Quality Enhancement Cell (QEC)
Shah Abdul Latif University Khairpur

Submitted By

Prof. Dr. Baqer Shah
Chairman
Department of Statistics

INTRODUCTION

The Department of Statistics is one of the pioneering departments of the university and working continuously since 1976. From beginning to date, this department produced best quality education in various areas in the field of Statistics. This department offering advanced courses in BS (Four Year) program as well as MS/MPhil programs. Most recently, department introduce some new courses on the realization of fact that this area of study has an important role in other areas of study like data sciences, Bio Sciences, social and physical sciences.

Field of Statistics is a speedily growing discipline with variety of real world problem based applications including other scientific, management and engineering fields. In particular, modern computer technology facilitates the development of high-quality and computer intensive statistical procedures and makes it possible to apply them to diverse statistical problems in the teal world.

Criterion 1: Program Mission, Objective and Outcomes.

Standards 1.1: The program must have recognized quantifiable Goals which support Faculty / Institution Mission Statements.

Criterion 1: Program Mission, Objective and Outcomes.

Mission Statement of the University:

 Slogan: **"Learn how to learn"**

Mission of the University:

- ✓ To build national character and put focus on production of quality graduates to contribute in the economic, industrial and social development of the country.

- ✓ **Vision of the University:**

  To develop human resources & capabilities to meet national development needs through quality teaching, learning & research. "Youth Empowerment" is one of the main objectives of the University.

Vision of the Department:

- To strengthen national and international reputation in collaborative scientific activity without compromising our core strength of excellence in statistical theory and methods.

Mission of the Department:

- Through quality based teaching and research the people of this area will be exposed to the latest trends and developments in applied statistical science.

Program Objectives:

1.   To produce graduates who can solve problems by statistically.
2.   To build up the graduates with a sense of dedication, motivation and hard work.
3.   To guide students for independent and self-motivated in the field of research.

Program Objectives	Program Outcomes		
	1.	**2.**	**3.**
To produce graduates who can solve the real world problems statistically.	Skilled & qualified Statisticians are to be produced.	The outgoing graduates and postgraduates are being largely engaged in national as well as in an international organizations	Students develop ability to apply knowledge of various aspects of the subject.
To build up the graduates with a sense of dedication, motivation and hard work.	To inculcate the graduates with a sense of dedication, motivation and hard work so that they are able to maintain and uplift the standard of statistical issues in the country	Students buildup confidence and communicate effectively in writing and oral demonstration.	Graduates develop ability to demonstrate progress in various data relayed fields.
To Guide students for independent and self-motivated in the field of research.	The graduated students play significant role after joining faculty positions at colleges, universities and other research as well educational institutes.	To make them self-reliant and self-motivated in pursuing cutting edge research.	The students after graduation are employed in public and private-sector research and development, as researchers, as administrators in Provincial & Federal statistical agencies.

Table 1. Shows Program Objectives and Program Outcomes

Standard 1-2: The program must have documented outcomes for graduating students. It must be demonstrated that the outcomes support the program objectives and that graduating students are capable of performing these outcomes.

Program Objectives Assessment.			
Objectives	**How Measured**	**When Measured**	**Improvement Identified**
To produce graduates who can solve problems	Most of the students are employed in educational, research	At the end of every academic year.	-

statistically.	and other related institutions.		
To produce graduates who can solve problems by statistically.	Highest number of the graduates of the department qualifies competitive exams for various posts especially in education. .	After each selection board conducted by various provincial, national & private sectors.	-
To Guide students for independent and self-motivated in the field of research.	Through assessing students during research oriented entry tests, interviews, and preparation of synopsis.	At the end of year	-

Table: 2. This Table shows how program outcomes support the Program Outcomes.

☞ **Note: Improvement Made:** This will be informed after AT visits.

Standard 1-3. The result of program's assessment and the extent to which they are used to improve the program must be documented.

Program Strengths and weaknesses.				
Program	**Strengths**	**Weaknesses**	**Things to be developed**	**Activities taken for improvements**
BS.I-BS.IV MS/MPhil	Good teaching and research environment.	Insufficient/outdated/out of order computers.	1. Relevant books & Journal 2. Multimedia facility 3. Laboratory	

Table: 3. Shows Program Strengths & Weakness.

Standard 1.4: The department must assess its overall performance periodically using quantifiable measures.

Program	Year **2020**	Students/ Faculty Ratio	Year **2021**	Students/ Faculty Ratio	Year **2022**	Students/ Faculty Ratio
BS 4Yr	136	27.2	114	28.5	84	28
M.Sc.	**….**		**….**		**….**	
MS/MPhil	07		**….**	**….**	**….**	
Ph.D	03		**….**	**….**	**….**	

Table: 4. Number of student enrolment during last three years and student faculty ratio:

Major Future Improvement Plans:

☞ To impart quality education in the department using audio visual aids and modern tools along with provision of latest literature, journals, books, reviews and access to internet.

☞ To establish Graduate Computer Laboratories.

☞ To emphasize problem oriented research work on modern technological implications.

Publications (HEC recognized only)		Research Projects		Monograph	Awards	Scholars produced		Organized National & International Conferences
National	International	Completed	Ongoing			M.Phil	Ph.D.	
01	07	02	None	None	None	02	-	None

Table: 5. Overall **P**rogress of the **D**epartment from 2020 to 2022

Criterion 2: The curriculum must be designed and organized to achieve the program's objectives and outcomes. Also course objectives must be in line with the program outcomes.

Standards: The curriculum must be consistent and support the program's documented objectives.

Semester	Course Number STAT Theory/ Practical	Category (Credit Hours) 1 Credit hr= 1 Class hour & 2-3 Laboratory Hours per week **Ratio 2:1 (Theory: Practical) Total CrHs 18*8=144**				
		Introductory		Core Course	Humanities and Social Sciences	Technical
			Basic Science.			
1ˢᵗ	103				English	
	105				Pak Studies	
	106		Calculus-I			
	108		Geography			
	109				B.F.M	
	101			Statistics		
2ⁿᵈ	104				English	
	105				ISS	
	107		Calculus-II			
	109		Geography			
	108				HRM	
	102			Prob: Distr:		
3rd	203				English	
	204		I. Computer			

	206		F: Maths			
	205		Ad Calculus			
	201			B.Stat: Inf:		
4th	204				English	
	208				P.M &M	
	207		Lin: Algebra			
	202			App. Stats:		
	203			Int. Regr: Ana:		
5th	301			PD		
	303			D & AE		
	307			R. Analysis		
	313			SP		
6th	302			PD		
	304			OST		
	306			DAE		
	308			Econometrics		
	310			Samp;		
7th	401			Ti: Ser: Ana;		
	403			O.R		
	405			Stat: Inf:		
	414			R.S		
	423			A.M.A		
8th	402			Stat: Inf:		
	404			MMS		
	424			Project		
	418			Population		
	419			CDA		

Program Objectives	Program Outcomes		
	1	**2**	**3**
To produce graduates who can execute statistically.	X X X	X X X	X XX
To build up the graduates with a sense of dedication, motivation and hard work.	X X X	X X	X X X
To Guide students for independent and self-motivated in the field of research.	X X X	X X X	X X

X   Relevant & satisfactory to some extent
XX   Relevant & satisfactory
XXX   Very relevant & satisfactory
XXXX   Highly relevant & highly satisfactory

Duration of BS Degree: 4 Years; 8 Semesters
BACHELOR OF SCIENCE IN Statistics
Curriculum Course Requirement: BS PART-I

Scheme of studies:

Course #	Title	Credit Hours
SEMESTER-I		
STAT-101	Introductory Statistics	3 Credit Hours
ENGL-103	English-1	3 Credit Hours
PKST-105	Pakistan studies	2 Credit Hours
MATH-106	Calculus -I	3 Credit Hours
GEO-108	Basic Finance Management	3 Credit Hours
ECO-109	Introduction to Genetics	3 Credit Hours
	Total	**17 Credit Hours**
SEMESTER-II		
ENG-104	English-II	3 Credit Hours
ISS-105	Islamic –Studies/ Ethics	2 Credit Hours
MATH-107	Calculus- II	3 Credit Hours
FNM-109	Geography	3 Credit Hours
HRM-108	Human Resource Management	3 Credit Hours
STAT-102	Introduction to Probability Distributions	4 Credit Hours
	Total	**18 Credit Hours**

Curriculum Course Requirement: BS PART-II

SEMESTER-III		
ENG-203	English –III	3 Credit Hours
COMP-204	Introduction to Computer	3 Credit Hours
MATH-206	Advanced Calculus	3 Credit Hours
ENV-205	Functional Maths	3 Credit Hours
STAT-201	Basic Statistical Inference	4 Credit Hours

SEMESTER-VI		
SEMESTER-IV		
MGT-208	Principles of Management & Marketing	3 Credit Hours
ENG-204	Communication Skill	3 Credit Hours
STAT-202	Introduction to Regression Analysis	4 Credit Hours
Math-207	Linear Algebra	4 Credit Hours
STAT-203	Applied Statistics	3 Credit Hours
	Total	**17 Credit Hours**
	Total	**16 Credit Hours**

SEMESTER-V		
STAT-301	Probability Distribution –I	3 Credit Hours
STAT-303	Sampling Technique –I	4 Credit Hours
STAT-305	Design & Analysis of Experiment –I	4 Credit Hours
STAT-307	Regression Analysis -I	4 Credit Hours
STAT-313	Statistical Packages	4 Credit Hours
	Total	**19 Credit Hours**
SEMESTER-VI		
STAT-310	Official Statistics	3 Credit Hours
STAT-306	Design & Analysis of Experiment –II	4 Credit Hours
STAT-304	Sampling Technique –I	4 Credit Hours
STAT-302	Probability Distribution –I	3 Credit Hours
STAT-308	Econometrics	4 Credit Hours
	Total	**18 Credit Hours**

SEMESTER-VII		
STAT-401	Statistical Inference-I	3 Credit Hours
STAT-403	Applied Multivariate Analysis	4 Credit Hours
STAT-405	Research Methedology	3 Credit Hours
STAT-414	Operations Research	3 Credit Hours
STAT-423	Time Series Analysis	3 Credit Hours
	Total	**16 Credit Hours**
SEMESTER-VIII		
STAT-402	Statistical Inference –II	3 Credit Hours
STAT-404	Population Studies	4 Credit Hours
STAT-424	Research Project/ Internship	3 Credit Hours
STAT-418	Mathematics Modeling & Simulation	3 Credit Hours
STAT-419	Categorical Data Analysis	3 Credit Hours
	Total	**16 Credit Hours**
	Grand Total	**133 Credit Hours**

Criterion 3: LABORATORIES AND COMPUTING FACILITIES

Standards: **1-3**. Laboratories and computing facilities must be adequately available and accessible to faculty members and students to support teaching and research activities.

Laboratory Facilities/Provision: No well-equipped at the present.

Standard: 1.
Laboratory manuals/ documentation instruction for experiments must be available and readily accessible to faculty and students.

   ✓ (1) None   (2) Available for students   (3) Available for Faculty   (4) Both

Standard: 2.
There must be adequate support personnel for instruction and maintaining the program. √ **No**

Standard: 3 The University computing infrastructure and facilities must be adequate to support program's objectives Computing Facilities.

NO computing facility in the department for the students.

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Criterion 4: STUDENT SUPPORT AND ADVISING: Students must have adequate support to complete the program in a timely manner and must have ample opportunity to interact with their instructors and receive timely advice about program requirements and career alternatives.

Standard: 4:1. Courses must be offered with sufficient frequency and number for students to complete the program in timely manner.

   ✓ Completely offered

Standard: 4:2. Courses in the major are structured in such a way that ensures effective interaction between students and faculty?
(1) Well-structured√

Standard: 4:3. Guidance in the major area of study must be structured to ensure effective interaction between students, faculty and teaching assistants.

Are students informed about program requirements?

(1) No   (2) To some extent   (3) √Fully

Does there student advising system exist and how effective it is?

(1) No   (2) √To some extent   (3) completely

Have students access to professional counseling?

(1) √No   (2) To some extent   (3) Full

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Criterion 5: The process by which major functions are delivered must be in place, controlled, periodically reviewed, evaluated and continuously improved.

Standard 5:1. The process by which students are admitted to the program must be based on quantitative and qualitative criteria and Cleary documented.

Program/credit transfer: Yes

Transfer of a student from outside the university: Yes

Admission Criteria: The admission policy is constituted by the "Admission Committee" consists of Deans, and senior faculty members of the university. The departments have no any role. The departments follow policy made by them which is also mentioned in "**Prospectus of the university**". However, the admission criteria are evaluated but not regularly.

Standard 5:2. The process by which students are registered in the program and monitoring of student's progress to ensure timely completion of the program:

How frequently admission criteria are evaluated?

(1) None   (2) Not regularly√   (3) Every Year

Are the evaluated results used to improve the results?

(1) No   2) To some extent   (3) Yes√

Is there any policy regarding program /credit transfer?

(1) No   (2) To some extent   (3) Well defined√

Is there any mechanism of student's registration in the program?

(1) No   (2) To some extent   (3) Well defined√

How frequently process of registration is monitored?

(1) None   2) within 1 year (3) After 1 year (4) When needed√

Are the evaluation results used to improve the results?

(1) No   2) To some extent   (3) Yes√

Standard 5:3. The process of recruiting and retaining highly qualified faulty members. The process of faculty evaluation, promotion must be consistent with institution mission statement.

☞ Shah Abdul Latif University strictly follows the policy of "Equal Opportunity" regardless religion, race, faith, cast & creed, gender regarding recruiting faculty including admissions, educational programs and employment.

☞ The University applies standard operating methodology for evaluation, such as Annual Confidential Report (ACR), required research papers, teaching experience and all other conditions as directed by the HEC. Thus

☞ This process ensures the objectives of the program mission.

Standard 5:4: The process and procedure used to ensure that teaching and delivery of course material to the students emphasizes active learning and that course learning outcomes are met. The process must be periodically evaluated to ensure that it is meeting its objectives.

☞ It is strictly observed that the time table is followed by the faculty. However, **Weaknesses & Strengths** have been observed through the student feedback for the "Course Evaluation". The department needs to improve in various aspects.

Standard 5:5: The process that ensures that graduates have completed the requirements of the program must e based on standards, effective and clearly documented procedure.

The process for the degrees of M.Phil/Ph.D. has been well designed by the Board of Advanced Studies & Research (BASR) followed by the HEC directions. Details are as under.

Degree	GPA/Class/GRE	Interview	
BS-4 Year/M.Sc.	Pre-Admission Test (NTS) style	X	

This process must be periodically evaluated to ensure that it is meeting its objectives.

√ **(Yes)**

The department ensures that the graduates actively participate in laboratory work, punctual in the classes, maintaining attendance over 75%.

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Criterion: 6. Faculty. Faculty members must be current and active in their discipline and have the necessary technical depth and breadth to support the program. There must be enough faculty members to provide continuity and stability, to cover the curriculum adequately and effectively. To meet this criterion the following standards must be satisfied.

Faculty Resume:

☞**Note**: Faculty resumes are well documented as per policy/criteria of HEC. Names of the faculty members and field of specialization are as under.

Name:	Position	Qualification	Field of specialization
Prof. Dr. Syed Maqsood Zia	Professor	Ph.D.	-Applied Statistics -Bio statistics epidemiology -environmental Management
Prof. Dr. Syed Baqer Shah	Professor	Ph.D.	–Modeling & Simulation –Applied Mathematics –Computational Fluid Dynamics
Mr. Imtiaz Ahmed Memon	Assistant Professor	M.Sc. (Hons Side)	Probability theory & probability distribution
Mr. Lal Bux Muhammadani	Assistant Professor	M.Phil & Ph.D. (Scholar)	Demography & Environments
Mr. Ameer Ahmed Pathan	Assistant Professor	M.Phil	Population in Demography

Standard 6:2. All faculty members must remain current in the discipline and sufficient time must be provided for scholarly activities and professional development. Also, effective programs for faculty development must be in place.

Is there sufficient time for faculty members for scholarly activities and professional development?
(a)   No   (b)   To some extent   (c)   **Full**√

Faculty Development Program: Yes

Standard 6:3. All faculty members should be motivated and have job satisfaction to excel in their profession.

The following criteria are under practice in order to satisfy the faculty members in their profession.
I. Fair, timely selection, appointment / promotion as per HEC policy.
II. Providing Tenure Track salary package
III. Excellent working environment.
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Criterion: 7. Institutional Facilities. Institutional facilities, including library, clean rooms and offices must be adequate to support the objectives of the program. To satisfy this criterion, the following standards must be met.

Standard 7:1. The Institution must have the infrastructure to support new trends in learning such as E-learning.

Standard 7:2. The library must possess an up-to-date technical collection relevant to the program and must be adequately staffed with professional personnel.

Standard 7:3. Class rooms must be adequately equipped and offices must be adequate to enable faculty to carry out their responsibility. Not as required

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Criterion: 8. Institutional Support. The institution's support and the financial resources for the program must be sufficient to provide an environment in which the program can achieve its objectives and retain its strength.

Does the department provide opportunities to the faculty members to attend international / national conferences?

(1) No   (2) To some extent   (3) Full√

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Teacher Evaluation Form
(To be filled by the student)

DEPARTMENT: Statistics   Year of Study: 20-22

A: Strongly Agree   **B: Agree**   **C: Uncertain**   **D: Disagree**   **E: Strongly Disagree**

Teacher:		**A**	**B**	**C**	**D**	**E**
1.	The teacher is prepared for each class	36%	43%	4%	7%	11%
2.	The teacher demonstrates knowledge of the subject properly	36%	39%	4%	18%	4%
3.	The teacher has completed the whole course	36%	29%	14%	18%	4%
4.	The teacher provides additional material apart from the textbook	14%	50%	11%	25%	0%
5.	The teacher gives citations regarding current situations with reference to Pakistani context.	11%	46%	11%	29%	4%
6.	The teacher communicates the subject matter effectively	18%	50%	21%	11%	0%
7.	The teacher shows respect towards students and encourages class participation	36%	43%	11%	11%	0%
8.	The teacher maintains an environment that is conducive to learning	21%	64%	11%	4%	0%
9.	The teacher is punctual & regular.	43%	29%	4%	25%	0%
10.	The teacher is fair in examination	18%	57%	14%	4%	7%
11.	The teacher returns the checked scripts etc. with his suggestions to the students.	7%	54%	25%	7%	7%
12.	The teacher was available for consultations after class hours.	14%	50%	7%	25%	4%
Course:						
13.	The matter presented in the course has increased the knowledge of the subject	18%	50%	14%	18%	0%
14.	The syllabus clearly states course objectives requirements, procedures and grading criteria	25%	39%	21%	11%	4%
15.	The subject integrates theoretical course concepts with real world.	11%	61%	7%	21%	0%
16.	The assignments and exams taken by the teacher were according to course and syllabi.	36%	43%	11%	0%	11%

Survey of Graduating Students

<u>DEPARTMENT: Statistics</u>   Year of Study: <u>20-22</u>

A: Very satisfied   B: Satisfied   C: Uncertain   D: Dissatisfied   E: Very dissatisfied

S #	Question	Percentage/Status				
		A	**B**	**C**	**D**	**E**
1.	The work in the program is too heavy and induces a lot of pressure.	11%	50%	33%	6%	0%
2.	The program is effective in enhancing team-working abilities.	11%	61%	22%	6%	0%
3.	The program is effective in developing analytical and problem solving skills.	22%	39%	28%	11%	0%
4.	The program is effective in developing written communication skills.	17%	61%	17%	6%	0%
5.	The program is effective in developing planning abilities.	22%	61%	17%	0%	0%
6.	The objectives of the program have been fully achieved	6%	44%	33%	11%	6%
7.	Faculty was able to meet the program objectives	11%	50%	11%	17%	11%
8.	Environment was conducive for learning	22%	44%	22%	6%	6%
9.	Whether the Infrastructure of the department was good.	17%	50%	17%	17%	0%
10.	Whether the program was comprised of Co-curricular and extra-curricular activities	17%	28%	33%	17%	6%
11.	Whether scholarships/ grants were available to students in case of hardship	6%	50%	6%	22%	17%

Answer question, if applicable.
The internship experience is effective in enhancing.

S #	Question	Percentage/Status				
		A	**B**	**C**	**D**	**E**
A.	Ability to work in teams.	11%	67%	17%	6%	0%
B.	Independent thinking.	17%	56%	22%	0%	6%
C.	Appreciation of ethical Values.	11%	78%	6%	6%	0%
D.	Professional development.	17%	56%	17%	6%	6%
E.	Time management skills.	22%	44%	33%	0%	0%
F.	Judgment.	6%	22%	50%	17%	6%
G.	Discipline.	22%	56%	22%	0%	0%
H.	The link between theory and practice.	22%	50%	17%	11%	0%

Student Course Evaluation Questionnaire

(To be filled by each student at the time of Course Completion)

DEPARTMENT: STATISTICS   Year of Study: 2020-22

CORE QUESTIONS

S #	Course Content and Organization	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
1.	The course objectives were clear.	21%	57%	14%	7%	0%
2.	The Course workload was manageable.	14%	64%	14%	7%	0%
3.	The Course was well organized (e.g. timely access to materials, notification of changes, etc.)	29%	57%	7%	7%	0%
Student Contribution		81%	80%	60%	40%	20%
4.	Approximate level of your own attendance during the whole Course.	0%	50%	29%	14%	7%
5.	I participated actively in the Course.	0%	50%	50%	0%	0%
6.	I think I have made progress in this Course.	0%	50%	29%	14%	7%
Learning Environment and Teaching Methods		Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
7.	I think the Course was well structured to achieve the learning outcomes.	14%	71%	14%	0%	0%
8.	The learning and teaching methods encouraged participation.	21%	57%	14%	7%	0%
9.	The overall environment in the class was academic & friendly.	29%	64%	7%	0%	0%
10.	Classrooms environment were satisfactory.	29%	29%	29%	14%	0%
Learning Resources		Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
11.	Learn materials provided by teacher were relevant and useful.	14%	57%	7%	14%	7%
12.	Recommended reading Books etc. were relevant and appropriate	14%	57%	14%	14%	0%
13.	The provision of learning resources in the library was adequate and appropriate.	14%	57%	14%	7%	7%
14.	The provision of learning resources on the Web was adequate and appropriate (if relevant)	7%	50%	21%	14%	7%
Quality of Delivery		Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
15.	The Course stimulated my interest and thought on the subject area Teaching techniques of the teacher were interesting and conducive.	14%	71%	7%	7%	0%
16.	The pace of the Course was appropriate	14%	43%	36%	7%	0%
17.	Ideas and concepts were presented by the teacher were clear.	29%	64%	7%	0%	0%
Assessment		Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
18.	The methods of assessment were reasonable.	14%	79%	7%	0%	0%
19.	Feedback on assessment was timely.	7%	64%	29%	0%	0%
20.	Feedback on assessment was helpful.	21%	29%	29%	21%	0%
Additional Core Questions **Instructor / Teaching Assistant Evaluation**		Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
21.	I understood the lectures.	29%	57%	14%	0%	0%
22.	The material was well organized and presented.	14%	79%	7%	0%	0%

		Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
23.	The teacher was responsive to student needs and problems.	29%	64%	7%	0%	0%
24.	Had the teacher been regular throughout the course?	14%	64%	14%	7%	0%
Practical		Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
25.	The material in the practical's was useful.	29%	43%	21%	7%	0%
26.	The demonstrators dealt effectively with my problems.	21%	43%	21%	14%	0%

Prof. Dr. Syed Baqer Shah
Chairman
Department of Statistics
Date- 29-03-2022