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HOSPITAL INFORMATION SYSTEM

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Abstract:- hospital information system (his) has evolved as an integration system of order entry systems, an administrative system, and departmental subsystems within a hospital. It has become more and more necessary for every health care staff in a hospital to use a computer terminal at almost everyday's works. Under this circumstances, his is expected to provide the staffs with various, world-wide information for decision making and better communication environment which can be used just on the terminals for everyday's works.
The implementation of the hospital information system contributes to the hospital informationization construction and is an important part of China's medical system reform. Informatization construction has been carried out in hospitals across the country, but high investment does not necessarily lead to outstanding performance results, and there is a paradox of IT productivity. This paper analyzes the influence mechanism of the hospital information system on doctors' work performance from two aspects: personal perception of system and individual self-efficacy. Empirical studies have found that doctors' perception of usefulness, perception system customization and self-efficacy have a significant positive impact on doctors' job performance during the use of information systems. This article will deepen and enrich the understanding of hospital information system performance theory, which will help further research on information system performance in the future.

Introduction:- Information technology (IT) has changed various aspects of human life and brought about fundamental changes in it. The health sector is an area that is affected by IT. The process of collecting and accessing health information is the most influntial dimension in health. Since providing health care for society is very complex and closely linked to information, it is impossible to ignore information and communication technology in medical and health care, especially hospital information systems (HIS). The HIS is a system that provides the process of collecting, storing, processing, retrieving, and displaying information needed for hospital education, management, and research . The main purpose of this system is to support hospital activities at the practical, tactical, and strategic levels to provide better service for patients .In general, some studies have indicated the impact of using these systems in the health care system. For instance, studies have indicated that health service-providing systems utilize significant benefits such as reduction of patient waiting time , reduction of mortality, drug side effects management , health care professionals' prompt and timely access to up-to-date patient information , reduction of medical errors , optimal service management , and improvement of care processes up to 60% . Although some studies have positively evaluated the impact of the HIS, it is important to note that achieving the aforementioned benefits

requires considering different infrastructures, including major users' views in the system. In other words, the system needs to be accepted by the main users because the system rejection ultimately leads to the effectiveness and performance of the HIS. The performance of any information system refers to a degree of organizational effectiveness that is achieved through the information system; hence, improving the HIS performance implies that the information system performance is tailored to internal and external changes and users' different demands . Cilliers and Flowerday (2013) found that 72% of HIS users believed that telemedicine helped improve the quality of their work. In this regard, users in rural areas used the information system and were more satisfied than users who worked in urban care centers, reflecting the appropriateness of the system's performance to work environment processes and users' demands in the information system . All hospitals in Iran have HISs, but these software are manufactured by different companies . The HIS of Neyshabur University of Medical Sciences (Version 8) was obtained from Tirageh-Computer Co. in Tehran in 2009 and was first implemented at Hakim Hospital and is currently being used in both Hakim and 22-e-Bahman hospitals. HISs of Neyshabur University of Medical Sciences have subsystems including electronic patient record management, hospital financial management procedures, evidence-based decision support systems, patient scheduling, paraclinical subsystems, and ward management . Given that the hope for the system's effetiveness in improving care for hospital clinical staff indicated the belief that the use of the system helped them achieve their career goals and made them successful in providing quality care. There was no study on HIS in hospitals affiliated to Neyshabur University of Medical Sciences. Hence, the present study aimed to investigate the impact of the HIS on the improvement of clinical staff performance and strategies to increase its effectiveness from the perspective of clinical staff.

Project Web Pages

Hospital Information System is a web application for the hospital which manages doctors and patients. In this project, we use PHP and MySQL database.

The entire project mainly consists of 3 Web Pages, which are

➢ Admin Web Pages
➢ User Web Pages
➢ Doctor Web Pages

Admin Web Pages:

1. Dashboard: In this section, admin can view the Patients, Doctors, Appointments and New queries.
2. Doctors: In this section, admin can add doctor's specialization and mange doctors (Add/Update).
3. Users: In this section, admin can view users detail(who take online appointment) and also have right to delete irrelevant user.
4. Covid Patients: In this section, admin can view patient's details.
5. Contact us Queries: In this section, admin can view queries which are send by users.
6. Doctor Session Logs: In this section, admin can see login and logout time of doctor.

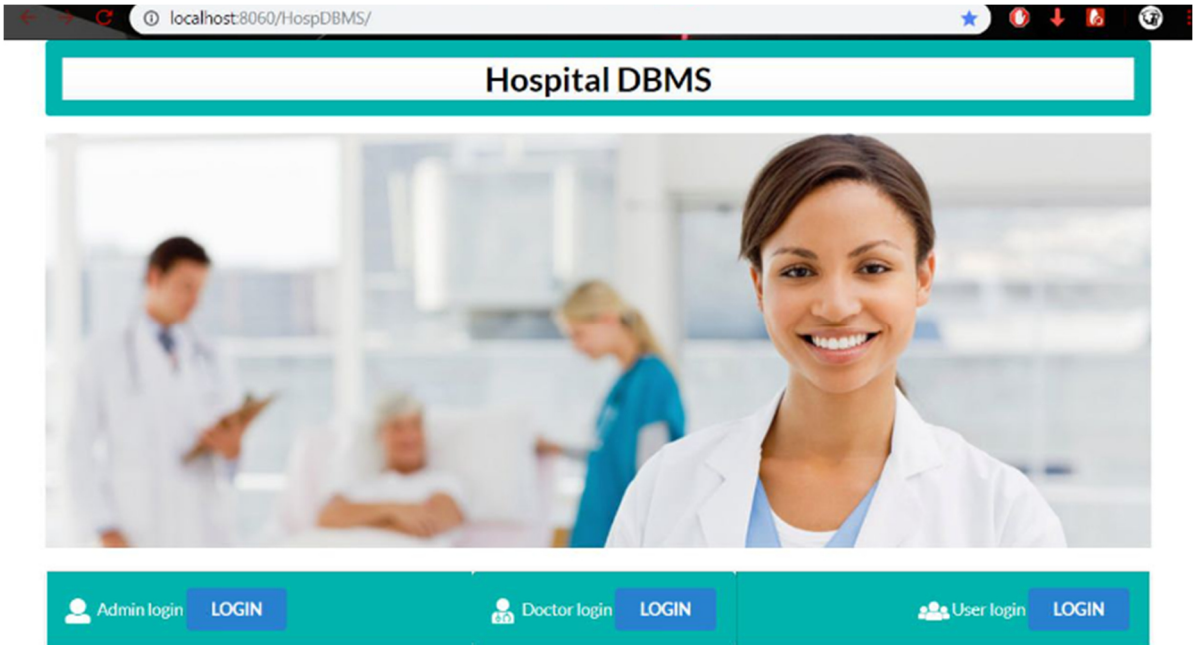
7. User Session Logs: In this section, admin can see login and logout time of user. 8. Covid Patient Search: In this section, admin can search patient with the help of patient name and mobile number. Admin can also change his/her own password.

User Web Pages (patient):

1. Dashboard: In this section, patients can view the his/her profile, Appointments and Book Appointment.
2. Medical History: In this section, Patients can see his/her own appointment history. User can update his/her profile, change the password and recover the password.

Doctor Web Pages:

1. Dashboard: In this section, doctor can view his/her own profile and online appointments.
2. Patients: In this section, doctor can manage patients (Add/Update).
3. Search: In this section, doctor can search patient with the help of patient name and mobile number.



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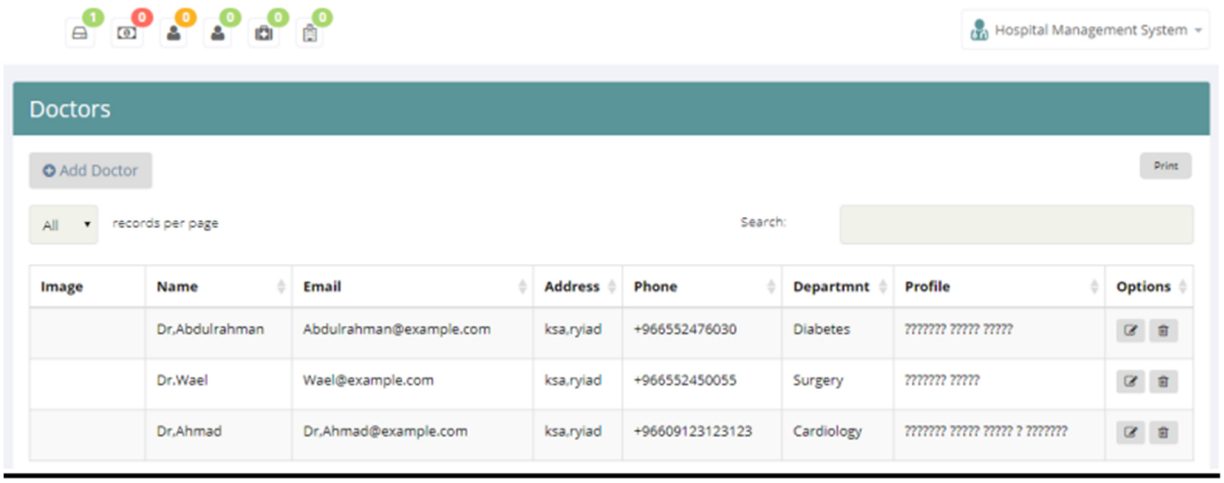
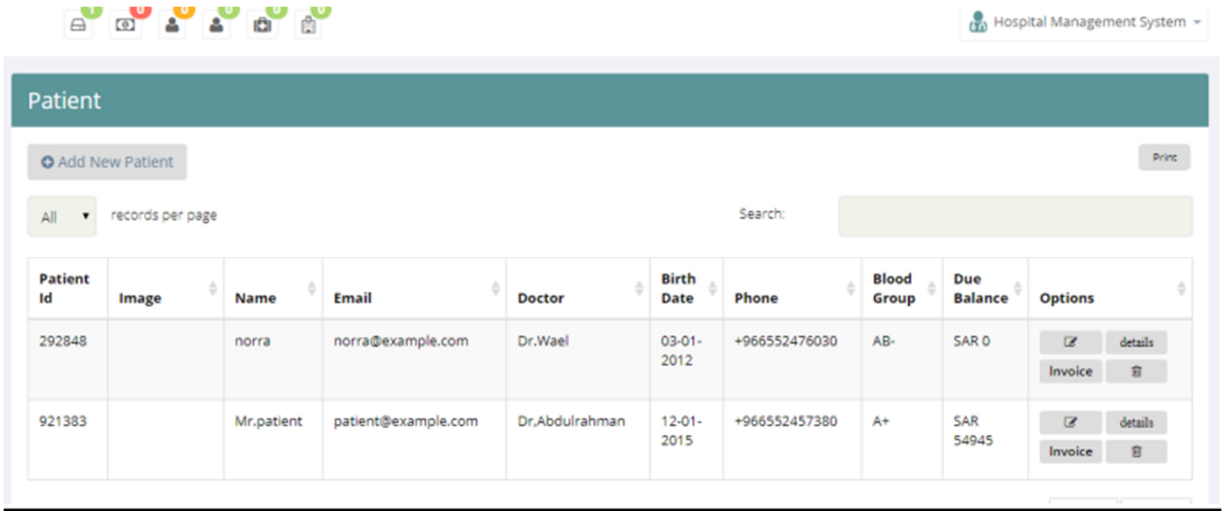
DOCTOR LOGIN:-





RESEARCH METHODOLOGY:-

In this chapter, the setting and design of the study were presented in this section.

1. Case Studies: Analyse real-world interior design projects as case studies to understand successful design strategies, challenges faced, and lessons learned. Compare different projects to identify trends and best practices.

2. Focus Groups: Organize focus groups with diverse participants to discuss specific design concepts, prototypes, or ideas. Gather feedback, opinions, and suggestions to refine your design approach based on user input.

3. Prototyping and Testing: Create prototypes or mock-ups of interior design concepts to test functionality, aesthetics, and user experience. Use feedback from testing sessions to iterate and improve your design solutions.

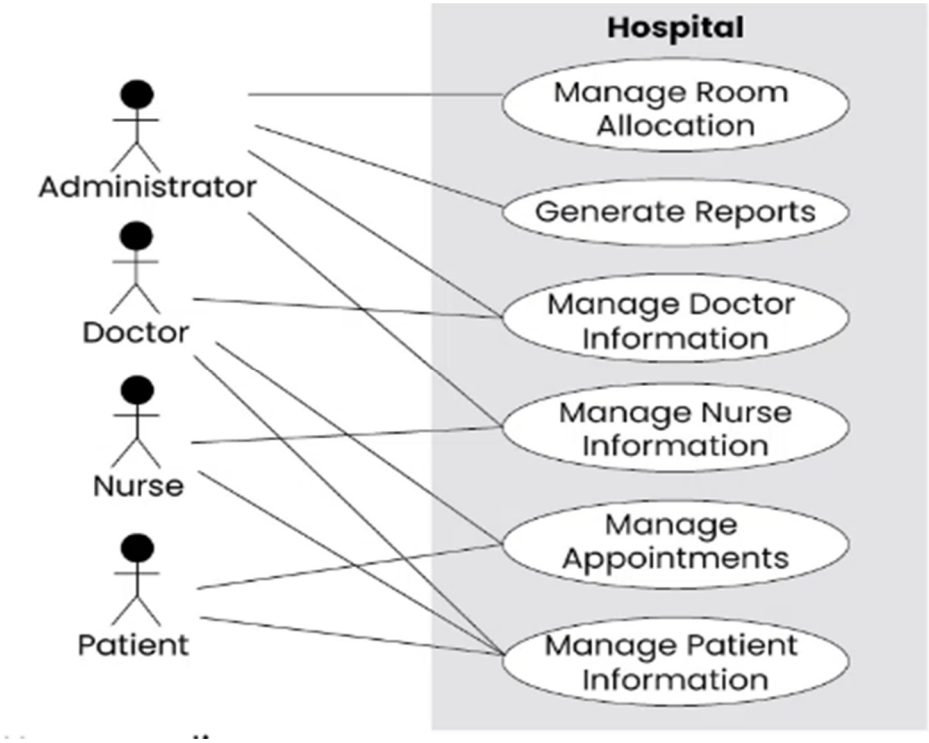
4. Data Analysis: Analyse the collected data using statistical tools, qualitative analysis techniques, or visualization methods to derive meaningful insights and trends. Present your findings in a clear and structured manner.

The Health Information Technology Affairs developed and validated a questionnaire to collect objective quantitative data from different types of the HIS users. The questionnaire contained five sections of questions; the first is a demographic user information section, including age, gender, job type, total healthcare experience and HIS module used. The second section included ten statements regarding general HIS assessment, the third section included three

statements regarding accessibility and availability of computer terminals in the hospital, the fourth section included three statements regarding the HIS and the patient care and the fifth section included six statements regarding the users satisfaction with the HIS. The questionnaire sections from two to five used the classic five Likert scale format; strongly agree, agree, neutral (neither agree nor disagree), disagree and strongly disagree. One final open ended question was added to ask users about their suggestions to improve the HIS performance, acceptance and satisfaction among users.

The target hospital population for the study is about 4,000 staff members, including end users who directly interact with the HIS, those were five main job types; physicians, nurses, pharmacists, technicians and administrators. We calculated the required sample size using the Slovin formula, at a suggested confidence level of 95% with a margin error of 0.05 and applying the Slovin's formula, n=N/(1+(N*e^2)), where n = sample size; N = population; and e = confidence interval, the required sample size for the study should be 364 participants. An electronic format of the survey questionnaire was built online and published on the internal hospital website and network so that a link to the questionnaire could be sent via email to all staff members of the target population, they were also notified through an awareness campaign by the HITA to tell them more about the importance of the survey and about the study. Paper forms were also used to enhance the response of the participants who needed to be reminded with or assisted in completing the questionnaire.

MODEL :- A hospital information system (HIS) is an element of health informatics that focuses mainly on the administrational needs of hospitals. In many implementations, a HIS is a comprehensive, integrated information system designed to manage all the aspects of a hospital's operation, such as medical, administrative, financial, and legal issues and the corresponding processing of services. Hospital information systems provide a common source of information about a patient's health history, and doctors schedule timing. The system has to keep data in a secure place and controls who can reach the data in certain circumstances. These systems enhance the ability of health care professionals to coordinate care by providing a patient's health information



IV. RESULTS AND DISCUSSION:-

Results of Descriptive Statics of Study Variables

Table 1

Frequency Distribution of Demographic Characteristics of the Research Population.

Demographic characteristicsD	**N(%)**
Sex	
Female	96(80)
Male	24(20)
Age Group (year)	
20-29	48(40)
30-39	48(40)

40-49	21(17.5)
>50	3(2.5)
Education level	
Associate Degree	10(8.33)
Bachelor	95(79.17)
Ph.D.	15(12.5)
Occupation status	
Physicion	15(12.5)
Nurse	48(40)
Paramedical and health IT	57(47.5)
Work experience(year)	
<5	33(27.5)
5-15	57(47.5)
15-25	24(20)
>25	6(5)
Attend computer and IT workshops	
Yes	75(62.5)
No	45(37.5)

Table 2

Research Population Attitude Towards the Effect of HIS on Improve Their Performance and Increasing the Effectiveness of HIS if the Studied Factors are Developed.

NO	Factors	Current Effectiveness and Importance Ratings						
		Mean Current	Mean Importa	Relative Importa	Relative Effectiven	Relative Score	Relative Score	Defere nce [B-

		Effectiveness Score [A]	nce Ratings Score [B]	nce Weight C=(B/ΣB)	ess weight D=(A/ΣA)	(Effectiveness) E=A×C×N	(Importance) F=B×C×N	A]
1	**Access to patient information**	3.43	4.12	0.05	0.05	3.65	4.39	0.69
2	**Accelerating diagnosis and treatment**	3.19	3.94	0.05	0.05	3.16	4.02	0.75
3	**Incidence of medical errors**	3.35	4.16	0.05	0.05	3.48	4.48	0.81
4	**Telemedicine**	2.88	4	0.04	0.05	2.58	4.14	1.12
5	**Unnecessary patient admissions and facilitating patient admission and discharge**	3.26	4.02	0.05	0.05	3.3	4.18	0.76
6	**Facilitating paraclinical processes (lab test, radiology, support consultations)**	3.62	4.28	0.05	0.05	4.07	4.74	0.66
7	**Facilitate nursing care processes**	3.26	4.01	0.05	0.05	3.30	4.16	0.75
8	**Medical research**	3.65	4.28	0.05	0.05	4.14	4.74	0.63
9	**Develop specific rules for the acceptance of HIS documentation in the judicial authorities**	3.51	4.53	0.05	0.05	3.83	5.31	1.02
10	**Reducing**	3.2	3.89	0.05	0.05	3.18	3.92	0.69

	costs and Increasing productivity of equipment and facilities							
11	**Integration of health information**	2.96	4.14	0.04	0.05	2.72	4.44	1.18
12	**Production of information resources**	3	3.87	0.04	0.05	2.79	3.88	0.87
13	**Patient Safety**	2.87	3.78	0.04	0.04	2.56	3.7	0.91
14	**Computer literacy and HIS**	3.25	4.18	0.05	0.05	3.28	4.52	0.93
15	**Increase in clinician motivation**	3.15	4.13	0.04	0.05	3.08	4.42	0.98
16	**Providing clinician and End users work needs**	3.33	4.23	0.05	0.05	3.44	4.63	0.9
17	**Identifying and troubleshooting software HIS errors.**	3.2	4.13	0.05	0.05	3.18	4.42	0.93
18	**Private enterprise participation in HIS project development**	3	3.93	0.04	0.05	2.79	4	0.93
19	**Updating HIS**	3.33	4.23	0.05	0.05	3.44	4.63	0.9
20	**Alteration and overwriting data and violation of legal rights of patients**	3.2	3.93	0.05	0.05	3.18	4	0.73

21	**Collaboration between health IT* experts and physicians and nurses to advance HIS goals**	3.2	4.33	0.05	0.05	3.18	4.85	1.13
22	**Distance and continuing education**	3.02	3.93	0.04	0.05	2.83	4	0.91
	SUM	70.86	90.04	1	1	71.16	95.58	19.18
	Mean	3.22	4.09	-	-	3.23	4.34	0.64
	P-Value	0.000	0.000					
	r	0.7	0.7					

Table 3

Research Population's Attitude towards the Effectiveness of HIS in Improving Clinical Staff Performance and Increasing the Effectiveness of HIS Based on the Examined Factors in Terms of Demographic Characteristics.

NO	Factors	Demographic Features					
		Current Effectiveness (P-Value)			Importance Ratings (P-Value)		
		Sex	Occupation	Workshop	Sex	Occupation	Workshop
1	**Access to patient information**	0.316	0.239	0.437	0.484	0.059	0.603
2	**Accelerating diagnosis and treatment**	0.408	0.142	0.394	0.527	0.032	0.158
3	**Incidence of medical errors**	0.746	0.205	0.625	0.1	0.14	0.365
4	**Telemedicine**	0.000	0.109	0.554	0.265	0.000	0.294
5	**Unnecessary patient admissions and facilitating patient admission and discharge**	0.309	0.071	0.394	0.18	0.008	0.168
6	**Facilitating paraclinical processes (lab test, radiology, support consultations)**	0.499	0.392	0.329	0.591	0.293	0.468
7	**Facilitate nursing care processes**	0.885	0.437	0.29	0.361	0.027	0.334
8	**Medical research**	0.445	0.000	0.000	0.23	0.000	0.104

9	**Develop specific rules for the acceptance of HIS documentation in the judicial authorities**	0.453	0.001	0.869	0.777	0.005	0.047
10	**Reducing costs and increasing productivity of equipment and facilities**	0.28	0.184	0.613	0.306	0.04	0.252
11	**Integration of health information**	0.155	0.002	0.207	0.329	0.02	0.031
12	**Production of information resources**	0.61	0.208	0.159	0.7	0.096	0.486
13	**Patient safety**	0.387	0.004	0.003	0.072	0.022	0.102
14	**Computer literacy and HIS**	0.151	0.934	0.188	0.119	0.052	0.482
15	**Increase in clinician motivation**	0.535	0.316	0.309	0.462	0.000	0.738
16	**Providing clinician and end users work needs**	0.661	0.000	0.653	0.36	0.002	0.401
17	**Identifying and troubleshooting software HIS errors.**	0.828	0.028	0.042	1	0.093	0.264
18	**Private enterprise participation in HIS project development**	0.775	0.001	0.073	0.001	0.000	0.000
19	**Updating HIS**	0.507	0.088	0.387	0.188	0.002	0.931
20	**Alteration and overwriting data and violation of legal rights of patients**	0.655	0.000	0.378	0.122	0.000	0.086
21	**Collaboration between health IT experts and physicians and nurses to advance HIS goals**	0.828	0.000	0.661	0.000	0.011	0.000
22	**Distance and continuing education**	0.176	0.001	0.215	0.313	0.000	0.494

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CONCLUSION – Since we are entering details of the patients electronically in the" Hospital System", data will be secured. Using this application we can retrieve patient's history with a single click. Thus processing information will be faster. It

guarantees accurate maintenance of Patient details. It easily reduces the book keeping task and thus reduces the human effort and increases accuracy speed. Working on the project was an excellent experience. It helped us to understand the importance of planning, designing and implementation so far we have learnt in our theory books. It helped us unleashing our creativity while working in a team. It also realized the importance of team working, communication as a part of this project. The project was successfully completed after a lot of efforts and work hours. This project underwent number of compiling, debugging, removing errors, making it bug free, adding more facilities in Hospital Management System and interactivity making it more reliable and useful. This project focused

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