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**INDIVIDUAL ASSIGNMENT.**

**BM006-3-2-CRI.**

**CREATIVITY AND INNOVATION.**

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1. EXECUTIVE SUMMARY

HealthGateway APP.

Types of Product/System Being Suggested and the Technologies Used:‎

HealthGateway is an online web and mobile application that enhances the access and awareness of health services in Yemen. The development technologies are HTML, CSS, JavaScript, React.js, Node.js for web applications, and React Native for mobile application development. Scalable cloud infrastructure uses MongoDB, MySQL to manage databases, and RESTful APIs, and WebSockets for seamless real-time communication.

Idea Generation Tools and Techniques Used:

The SCAMPER was utilised to generate creative ideas by considering many angles for enhancing the capabilities and attributes of the system. Through the replacement, combination, adaptation, modification, reversal, deletion, and putting to new uses of various aspects, it promoted creative thinking (Cox, 2020). and fishbone to show the system's operations and procedures.‎

Idea Evaluation Tools and Techniques Used:

According to What Is Cost-Benefit Analysis, How Is It Used, What Are Its Pros and Cons? (2024), the analysis looked at evaluating HealthGateway's financial viability and potential return on investment in comparison to implementation costs and anticipated benefits. To ensure a more comprehensive assessment of the internal and external factors that could impact the project's successful completion, a SWOT analysis was also conducted to identify the project's strengths, weaknesses, opportunities, and threats (SWOT Analysis: How to with Table and Example, 2024). With the use of these two assessment instruments, the researcher was able to refine the idea and confirm that it would work to address Yemen's healthcare issues.

1. PART 1

2.1 Introduction On the Company Background

Our company is a leading IT consulting service provider, specializing in creative fixes for consumer goods and services. Our reputation has been built up because we're able to develop quickly and stay the course on quality, making us a partner firms can rely on when using technology to drive client experiences and growth. Our team of specialists encompasses a variety of professionals' talents and knowledge to be able to give special solutions that suit our clients' particular demands and difficulties. Our creativity and commitment to customers' success have made it possible to build a solid reputation for delivering top-notch solutions that help organizations to thrive in the dynamically changing industry.

2.2 Problem Analysis

In Yemen, an undermined flow in healthcare information worsens preventable illnesses ‎and health crises. The ignorance of disease transmission, signs and symptoms, and preventive ‎measures predisposes individuals to the transmission of disease and, concurrently, hinders them ‎from accessing suitable, effective healthcare. This is even compounded by the war going on in ‎the country, which has drained and exhausted facilities for healthcare in the country. Many ‎communities, thus, do not have the privilege of receiving necessary healthcare and healthcare ‎products and sometimes even qualified caregivers. Furthermore, the absence of large-scale ‎initiatives on health education leaves the population ill-prepared to identify and manage health ‎issues, which results in increased morbidity and mortality rates. In such a context, the provision of ‎accurate information on health issues and opportunities for consultation and support from ‎health professionals is vital. That would really help in addressing these gaps in healthcare ‎awareness and access, and in improving health outcomes and resilience within the Yemeni ‎communities (Raof Al Waziza et al., 2023)‎.

2.3 Impact and Consequences of the Problem

Yemen's poor awareness of health and lack of access have grave consequences that are both widespread and pervasive. A lack of knowledge on disease transmission, symptoms, and preventable activities exposes the population to preventable diseases and health emergencies. This, in turn, leads to increased disease prevalence and mortality, especially among vulnerable groups like children, pregnant mothers, and the elderly. Additionally, the lack of health services access complicates individuals' efforts to gain timely and effective diagnosis, care, and treatment. Lack of widespread health education also magnifies the issue of stigmatization and myths about health conditions, presenting a barrier to attaining early intervention and preventive health practices ‎(Raof Al Waziza et al., 2023)‎.

Because of this, the Yemeni health system is unable to cope with the massive demand for services, translating to a scarcity of drugs, crowded facilities, and overstretched resources. That not only reduces the quality of care provided, but it also heightens the existing disparities in health outcomes and access. Furthermore, the continuation of health problems enhances the instability of communities already embroiled in political turmoil and financial instability, creating a circle of susceptibility and reliance on outside resources and assistance. In sum, Yemen has serious implications from a lack of knowledge about and access to healthcare, which affects the health outcomes, the resilience of the people and their communities, and the overall socioeconomic development of the nation (Hyzam et al., 2020).‎

1. PART 2

3.1 Idea Generation

3.1.1 SCAMPER is an acronym for Substitute, Combine, Adapt, Modify, Put to Another Use, Eliminate, and Reverse. SCAMPER is a brainstorming technique that asks the participants pointed questions about existing products, processes, or ideas to generate new ideas (Cox, 2020). Let us go over each SCAMPER element in detail.‎:

**1. Substitute:**

This is a process where one replaces a part or aspect of the product or process with something else. For example, in the context of HealthGateway, one might consider substituting traditional text-based educational resources with interactive multimedia content to enhance user engagement and understanding.

**2. Combine:**

This means the combining of elements or features to yield a new or more valuable state of the ‎elements. For HealthGateway, the facility of community forums and expert consultations could ‎be combined to create a more complete or holistic support system where, without leaving the site, ‎the user would be able to connect with peers as well as health professionals.‎

**3. Adapt:**

This consists of adapting existing ideas, technologies, or approaches to fit the context of the product ‎or process. For instance, in the case of HealthGateway, it is possible to adapt telemedicine technologies to facilitate virtual consultations between users and healthcare professionals, overcoming barriers to access in remote areas.‎

**4. Modify:**

This involves making changes or enhancements to current features or elements. For ‎HealthGateway, we can redesign the user interface and experience to be more intuitive and ‎friendly, hence more accessible to users with not very high levels of technical expertise.‎

**5. Put to another use:**

This involves repurposing or finding alternative uses for existing elements or resources. In the case of HealthGateway, we might look at ways to put to good use the plethora of community forum content that is generated every day by aggregating and anonymizing it to identify trends or insights that could inform public health initiatives.

**6. Eliminate:**

These include the elimination or simplification of elements and steps that are not really necessary. For HealthGateway, we could consider eliminating duplicate features or processes to make the ‎user experience leaner and more efficient, like eliminating excess form fields from the registration process.‎

**7. Reverse:**

This includes inverting the order or sequence of elements or steps to look at an alternative view or approach. For HealthGateway, this could be the inversion of the usual model of health delivery, thus placing users in roles more proactive with management of health through self-assessment tools and health plans tailor-made for them.

3.1.2 Fishbone is a technique, or Ishikawa diagram, visually identifies and organizes potential causes of a ‎problem to determine its root causes (What Is a Fishbone Diagram? Ishikawa Cause & Effect ‎Diagram | ASQ, 2023) (low user adoption of HealthGateway). ‎

A diagram of a process

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The above fishbone diagram helps identify potential causes of the low user adoption of ‎HealthGateway, categorized under Method, Machines, Environment, and People. Each category ‎lists specific issues that may contribute to the overall problem.‎

1. PART 3

4.1 Competitor Analysis

Notable competitors of ‎HealthGateway include HealthNet and MedConnect in the domain of health information and telemedicine. ‎HealthNet services focus on underserved regions and provide healthcare information and virtual consultations, while MedConnect offers advanced services in telemedicine through a mobile app and is meant for urban populations with robust technological features.‎

|  |  |  |  |
| --- | --- | --- | --- |
| Attributes | Competitor A: HealthNet | Competitor B: MedConnect | Owned Product: HealthGateway |
| Uniqueness | Interface is easy to use and concentrates on areas that are neglected.‎ | strong focus on technology, aimed to the metropolitan populace.‎‎ | integrates community forums, telemedicine, and health information to provide all-encompassing access to healthcare.‎ |
| Limitations | restricted features for advanced telemedicine.‎ | high reliance on consistent internet access.‎ | Increased expenses and increased complexity in usage for end users might result from sophisticated integration.‎ |
| Technology | Fundamental telemedicine and instructional materials.‎ | sophisticated telemedicine and health forms.‎ | AI, telemedicine, instructional materials, and forums for the community.‎ |

1. PART 4

5.1 Objectives Statements

1. Create Awareness of Health: .- Result: Increase health literacy and empower informed decision making.

2. Facilitate Access to Healthcare: - Objective: Increase access to health care, especially in remote places.

- Outcome: Create a link between the user and a healthcare provider or facility near him.

3. Promote Preventive Healthcare: - Objective: Promote early intervention and prevention health care practices.

- Outcome: Improve public health and reduce the burden of preventable diseases.

4. Promote Community Engagement: - Objective: Create a supportive online platform where individuals can share their stories and get advice.

- Objective: Foster compassion and togetherness among the users who are challenged by health problems.

5. Promote Innovation in the Medical Sector: The purpose is to realize innovative health care delivery by using technology and community-based approaches.

- Objective: Make Yemen's health system more effective, efficient, and accessible.‎

5.2 Product Concept Description

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With the goal of addressing the healthcare crisis in Yemen, HealthGateway is an innovative mobile application and web platform that allows users access to critical healthcare resources, information, and support. The app aims to increase community health awareness, promote conversations about illnesses, and connect Yemeni communities with volunteers and medical experts.‎

A diagram of a computer network

Description automatically generated

3

The HealthGateway app offers medical materials from reliable sources and connects patients with available doctors to solve serious problems within the healthcare system. For more prompt medical assistance, patients may also order consultations and find doctors who have recently updated their availability status. Furthermore, such technology allows patients to be more aware of their conditions, as they can demand and access relevant medical materials. From the application, doctors can change their status, which raises the performance of their work and reduces the amount of waiting time. On the whole, this Internet-based system ensures information accuracy, accessibility of medical professionals, and better coordination in healthcare delivery.‎

5.2.1 Features:

1. Learning Resources: Access to comprehensive learning resources on symptoms, treatment options, preventive measures, and general illnesses.

2. Forums: These are chat rooms that enable members to join a community of interest to discuss issues, share experiences and seek guidance from moderators and other users volunteering their time, including medical professionals.

3. Consultations: Access tailored health advice and support from online consultations with doctors, pharmacists, and other healthcare experts who volunteer their services.

4. Emergency Help: Access to emergency contact information, first aid guidance, and help resources in times of medical emergencies.

5. Anonymous Groups: These are discussion forums established to provide support and encourage peer support groups for patients with specific health conditions. ‎

5.2.2 Functions:

1. Raise Health Awareness: Develop information materials and campaigns on diseases, their symptoms, and measures for their prevention.

2. Make Healthcare Accessible: Help Users Find Quick Help by Connecting Them with Facilities and Healthcare Professionals.

3. Encourage Preventative Health Care: Motivate people to monitor health indicators, plan preventive examination appointments, and receive individual recommendations.

5.2.3 Technologies:

Web technology: The architecture of web application incorporates HTML, CSS, and JavaScript, which ensures a responsive, user-friendly interface. Stellato and Fiorelli (2023) add that React.js enhances interactivity and dynamic content, and Node.js with a stable backend permits the effective processing and real-time change of data.‎

Mobile Technology: Cross-platform mobile application development is easily enabled via React Native, guaranteed to be equally reliable and efficient when used with iOS and Android. Schrammeijer et al. (2022) add that push notifications increase the time spent by users on the app and, consequently, adherence to offered health advice because users keep receiving the latest health update and reminders. ‎

Database Technology: Databases compile data to make data administration, access, and storage more effective. It serves different purposes across a wide range of enterprises, from facilitating scientific research to managing consumer information. Businesses and organizations may utilize various kinds of database management systems, such as SQL or NoSQL, to enable data-driven decisions through accessible, formatted data (Zhao et al., 2024).‎

Cloud Technology: As cloud computing is further integrated into the processes of companies, organizational operations are changing, and it has become necessary to understand how its usage is affected by cultural dimensions. This research incorporates perceived usefulness into the Technology Acceptance Model framework to investigate how individualism and uncertainty avoidance affect the use of cloud services through Hofstede's dimensions. The findings direct IT strategies in the creation of collaborative technology ecosystems in harmony with the organizational culture (Chen et al., 2024).‎

Internet Technology: This is the framework or rather the basis that supports communication and sharing of information worldwide. Resource sharing, communication, and access to information are facilitated and made easier across different networks and devices. This is furthered by the Internet of Things (IoT), which links physical items and makes cognitive operations like monitoring, analysis, and control possible. IoT is transforming many sectors and daily life (Hosny et al., 2024).‎

5.2.4 Market Identification

a. Price - Revenue/Income:

HealthGateway plans to operate a freemium business model, offering community forums and instructional materials with free basic access. At the same time, it will offer subscription plans and pay-per-use alternatives for premium services, such as personalized assistance and expert consultations. This pricing model ensures income at the same time that it guarantees access for all Yemeni residents, with premium offerings. To ensure affordability and maximize the income potential, HealthGateway might also seek to partner with governmental organizations or healthcare providers to subsidize the expenses for marginalized communities.‎

b. Product/Package:

HealthGateway will offer support groups, community forums, consultations with professionals, access to emergency help, instructional information, and a health resources directory. This comprehensive approach will ensure that consumers can find and receive numerous healthcare services and support in the most convenient way that meets a variety of requirements and preferences. The product package will be updated and changed on a regular basis to reflect user preferences and trends emerging in healthcare over time.‎

c. Place - Specific Geographical Location:

At first, HealthGateway would target specific regions within Yemen that are most affected by the health emergency, such as those affected by conflict and with low access to health care. HealthGateway can reach vulnerable populations that are most in need of health assistance by focusing on these regions, thus maximizing its reach. The network can then be extended to other regions and countries if funding and need permit to better address broader health needs .

d. Promotion:

HealthGateway will be promoted through a multi-channel approach in reaching and increasing user adoption and awareness. This includes outreach through social media, relationships with neighbourhood NGOs and healthcare groups, community events, digital marketing efforts, and working with prominent people and local leaders. HealthGateway will capitalize on word-of-mouth marketing by employing referral programs or giving awards to users who bring their friends and family into the network. Further, reach and influence throughout Yemen will be increased with strategic partnerships between HealthGateway, governmental institutions, foreign organisations, and media outlets.‎

1. PART 5

6.1 Idea Evaluation

6.1.2 Cost-Benefit Analysis:

The cost-benefit analysis compares a project's expected benefits with its intended implementation costs to determine a project's feasibility and possible investment return (What Is Cost-Benefit Analysis, How Is It Used, What Are Its Pros and Cons?, 2024).‎

Costs:

- Development costs: These include platform design, software development, and the technical infrastructure setup.

- Operational costs consist of regular improvements, maintenance of servers, and customer support.

- Marketing costs: promotional events, merchandise, and online marketing activities. ‎

Benefits:

Better health outcomes: Reduced health care costs due to early intervention and preventive measures.

- Improved access to health care: More people could potentially have access to emergency health care by receiving timely health advice and assistance.

- Community capacity: Building stronger ties and resilience in community to yield long-term socio-economic benefits.‎

6.1.2 SWOT Analysis:

The SWOT analysis examines the opportunities and threats, weaknesses, and strengths of a project to identify the internal and external factors that may affect the realization of the project objective. It was. done from the source: SWOT Analysis: How to with Table and Example 2024. ‎

Strengths:

- An innovative idea that uses technology and community participation.

‎ - Complete features that cater to different healthcare requirements

‎- Can be scaled and adapted to newer healthcare challenges. ‎

Weaknesses:

-Reliance on internet connectivity, which can be limited in some isolated areas.

‎ - User adoption issues at the beginning due to low digital literacy in Yemen.

- Sustainability issues related to funding and long-term support.‎

Opportunities:

‎- Increasing requirement for digital health solutions worldwide.‎

- Possible collaborations with health institutions, NGOs, and governmental organizations.‎

- Expansion to neighbouring areas or countries with similar health care needs.‎

Threats:

- Political instability and conflict undermining business operations.‎

- Competition from existing health care plans or conventional health care.

- Regulatory challenges and data privacy concerns.‎

PART 6

1. Appendix

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7.2 Survey.

7.2.1 Title of The Survey and the Date.

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A close-up of a graph

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5

7.2.2 Name Request.

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7.2.3 APU email request.

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7

7.2.4 Question 1.

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8

7.2.5 Question 2.

A pie chart with different colored circles

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9

7.2.6 Question 3.

A pie chart with numbers and a diagram

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10

7.2.7 Question 4.

A colorful pie chart with numbers and a few words

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11

7.2.8 Question 5.

A pie chart with different colored circles

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12

7.2.9 Question 6.

A pie chart with different colored circles

Description automatically generated

13

7.2.10 Question 7.

A pie chart with different colored circles

Description automatically generated

14

7.2.11 Question 8.

A screenshot of a computer

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A screenshot of a computer

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15

7.2.12 Question 9.

A screenshot of a questionnaire

Description automatically generatedA screenshot of a medical survey

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16

7.2.13 Question 10.

A screenshot of a computer

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A screenshot of a white box

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17

7.2.14 Question 11.

A graph with a bar and a red line

Description automatically generated

18

7.2.15 Question 12.

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19

7.2.16 Question 13.

A screenshot of a computer

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20

7.2.17 Confirmation of the Survey.

A screenshot of a computer

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Description automatically generated

21

7.2.18 Signature.

A white rectangular object with black lines

Description automatically generated with medium confidenceA white background with black lines

Description automatically generated

22