THE ASSISTED HEALTHCARE SYSTEM (AHS)

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Project description:

Our system is about health care and medical care using virtual reality (VR), Artificial intelligence (AI), databases, and Big data analysis.

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Software Goals

- Increase quality of care and enhance healthcare outcomes
- Make users aware about their (Physical and mental)health

Requirements:

functional:

FR1-Smart device anyone can buy connected to the system that can send the location to the hospital to send an ambulance if there is any accident happens.

FR2- The user should enter his personal data and save it in patient database.

FR3-System should analyze data entered and make plans to help the user.

FR4-Send Alert to his emergency contacts before any problems or complications occur.

FR5- The user will wear a smart device that the device will share with the nearest hospital the health condition of the user to follow up him.

FR6- if the device have recorded a bad record of the health condition of the user, it sent warning message to him and his emergency contacts and the nearest hospital.

FR7- When the user opens the app on the phone/the system on the website he can see his health condition from the readings of the device such as blood pressure or heart rate readings.

FR8- If the hospital saw a bad record of the user's health condition, they sent emergency to him.

FR9- Giving recommendation about doctor's information to the patient.

FR10- when the user open the systems and choose the doctor's specialty, The system show the doctor address and his schedule

FR11- the system check if the Patient needs a medication schedule or the system remind him to take the medicine in time

FR12- The system tells the user the latest news about preventative care.

FR13- Make the system increase the accuracy by granting an AI that can check if there is interaction that may occur between the drugs used or if the patient have an allergy to specific medication by checking his report and doctor notes

FR14- Psychological support for the patient and his family

FR15- The system should enable the patients to access their information of their health state to aware and allow them to take decisions related to their treatment.

FR16- The system should provide personalizing healthcare services according customer requirements and specific needs.

FR17- The system should be prepared to prevent and detect the spread of infections and other hazards to patient, staff, and visitors.

FR18- The system should manage the patient daily meals according to information about patient health condition.

FR19- Calculate Body Mass Index (BMI) (BMI = Weight / [Height]^2)

FR20- Monitor daily calorie burn.

FR21- Sleep duration recording and send report about sleeping ratio , also sending warning notification if there is any problem with sleeping ratio.

FR22- Suggesting apps for fitness according to the patient health condition.

FR23- provide a variety of analytics. These analytics can be used to recognize health patterns, help predict a patient's diagnosis.

FR24- physicians can quickly access and update a patient's file while simultaneously saving that data and storing it for future use.

FR25-Patients can receive billing statements, check their payment history and make payments all through the use of their mobile device.

FR26-Patient are able to make adjustments to their payment plans, set up auto-pay and receive alerts notifying them of any upcoming or past-due payments.

FR27-Reminding the patient with routine visits such as annual checks.

FR28-Recording laboratory results in the database to facilitate the doctor's diagnosis of the patient

FR29-Record the history of the patient activity during every week and make diagram to help the patient to know his active time.

FR30- Users who have medications will have reminders when the medication is running out

non-functional:

NFR1- Performance:

1.1- How fast System should respond to ease communication with the client in 10 sec max. time.

1.2- How fast the system see if patient have an allergy to a specific medication by checking his report in 7 sec max. time.

1.3- How the system remind the patient that he must take the medicine in time.

NFR2-usability:

2.1- How easy system to use if accident happens

2.2- The system creates empathetic interaction using voice feedback.

2.3- The system should be easy to use by patients and healthcare staff.

2.4- Ease suggestion for fitness apps via AI

2.5- Facilitate payment methods via (Visa, Fawry Pay, Master Card, and Vodafone Cash)

NFR3-security:

3.1- How well a system protects Data that clients entered.

3.2- How well a system protects the patient notes that he entered to save his privacy life.

3.3- That when the user opens the system to find the doctor's specialty, the personal information about the user cannot be seen to anyone.

3.4- The system should protect the patient information from espionage and hacking.

3.5- The system must maintain confidentiality of patient's health condition.

3.6- Protect all payment methods and the customer's account

3.7- Preserving the confidentiality of his opinion.

3.8- Data is encrypted in transit.

NFR4- Maintainability:

4.1-The average time to restore system following system

failure must not be greater than 10 min

4.2- collect the users reviews (comment and complaints) and work to solve it maximum in 1 day.

NFR5- Scalability:

5.1- System can be Scalable enough to support 900000

Users at the same time.

5.2- The system should be able to manage the large information of the patients so it doesn't affect its performance or it's quick response.

NFR6- Reliability:

6.1-Improve provider and patient satisfaction in each time he use through out software

System services:

Function & Operation:

1-(FR **1,4,5,6,8**) Occurrence of emergency situation happened with the patient make an action to help him.

1.1-smart device read the change in vital signs

1.2-software analyze the change in data

1.3- send message if any accident happens

1.4- Sending instructions for the hospital

2-(FR **1,2**) Collecting health data about the patient

2.1-user should enter his personal data

2.2-save his data in patient database

3-(FR **3,9,18,22**) Suggest and make plans according patient health

3.1- user entered what is suffer from

3.2-system make plan commensurate with his sate of health

3.3- manage patient daily meals

3.4- recommend fitness apps according to patient condition

4-(FR **1,5,6**) Smart device that help to know any change in vital signs

4.1-smart device read vital signs and send reports periodically

4.2-when any changes happen system detect it

4.3-send alert to emergency contact

5-(FR **12,17**) Show the latest news about preventative care

7.1-Show the latest news to prevent infections

7.2-show how to prevent from infections and diseases

6-(FR **9**) Giving Recommendations about doctors

8.1-recommend doctor according to what user suffer

8.2-connect user with the recommended doctor

7-(FR **10**) Showing doctor work address and his free schedule

9.1-show doctor information

9.2-show doctor available time

8-(FR **11**) Give medication schedule

10.1-schedule patient medication time

10.2-remind him to take it in time

9-(FR **14,24**) Psychology support

11.1-private sessions for psychological support

11.2-save the secure of patient information

10-(FR **13**) By using AI to detect any conflict between drugs active substance

12.1-user enter all his taken medications

12.2-system detect if there is drug interactions between medications

11-(FR **18,16**) By following the patient healthcare his daily meals are set

13.1-set suitable meals according to his sate of health

13.2-commnicate with Nutrition doctor to set suitable meal

12-(FR **7,15**) The patient can follow up the update about his health sate

14.1- The patient can follow up his vital signs such as (Blood pressure, Heart rate)

14.2- Sending warning message if average records changes

13-(FR **21**) record sleep duration

15.1-record when he wakes up and when he sleeps

15.2- send report about sleep ratio.

14-(FR **19**) Showing the patient Body mass index

16.1-calculate BMI by using his weight and height ($\frac{w}{h^2}$)

16.2- Give advice to adjust BMI

15-(FR **20**) monitor daily calorie burn

17.1-Calculate the workout activities

17.2-calculate approximate calorie burn

16-(FR **25**,**26**) payment feature that help the patient

18.1- adjustments for payment plan

18.2- auto-pay to make payment process more easier

18.3- alert for past due payment

17-(FR **28**) Continuous follow-up of laboratory results

19.1- saving laboratory result in patient database to help doctor in diagnosing of the patient

18-(FR **29**) Making weekly diagrams to help patient

20.1- help patient to know active time

20.2- help patient to know monthly burn calories.

20.3- help patient to know the rate of changing in the weight

19-(FR **27**) Reminding the patient with annual checkups

21.1-Gives the patient alert before the next time for checkup

20-(FR **23**) Giving weekly analytical report

22.1 –recognize health patterns

22.2- help in predict patient diagnose

System rules:

Must have rules:

1.The user age must be more than 14 years old.

2. The password that the user will create it by himself must be

- At least 12 characters long but 14 or more is better.
- A combination of uppercase letters, lowercase letters, numbers, and symbols.
- Not a word that can be found in a dictionary or the name of a person, character, product, or organization.
- Significantly different from your previous passwords.
- Easy for you to remember but difficult for others to guess. Consider using a memorable phrase like "6MonkeysRLooking^".

3. The user must accept the privacy policy of the system.

4.The system must detect the nearest hospital to the user.

5. The system should make cooperation with hospitals.

6.The system must contain doctors' data, working hours and places of work from the hospitals.

7. The system must verify the validity of the data entered by the user.

8.The system should contain a lot of medical and pharmaceutical information and be revised by the doctors.

9.The user must register his smartphone in the system.

10.The user should have smart device connected with his smartphone.

11.The system must save the privacy of the user.

12. The system must allow users to schedule virtual online appointments with a doctor.

13.The system must organize the patients’ medication schedule or planner for sleeping time and work time.

14. The system must provide up-to-date news and information on preventative care.

15.The system must check for the negative effects from drug interactions or the users' allergies from some medicine.

16.The system must provide access to psychological support for the patient and their family.

17.The system must provide accurate and up-to-date information about the patient's state of health to enable them to make informed decisions about their treatment.

18.The system must be designed to offer personalized healthcare services that meet the specific needs and expectations of each customer.

19.The system must maintain the confidentiality of the patient's condition and protect their privacy.

20. The system must implement appropriate measures to prevent the spread of infections and other hazards to patients, staff, and visitors.

21.The system must manage the patient's daily meals according to their health condition and dietary requirements.

22.The system must figure the patient sleeping time and must warn him if he gets less time than he needs.

23.The system must suggest exercises workout according to the patient health condition.

24.The system must minimize the human errors.

25.the system must Increase quality of care and enhance healthcare outcomes.

26.The system must Improve provider and patient satisfaction through our software and if it necessary can use technical support.

27.The system must generate a diagram monthly to

covered distance state.

28.Electronic questionnaire survey must be published monthly on the app for Comments and Complaints.

Shall not have rules:

1.The system should not share user information with other companies or be available for anyone to see.

2.The system mustn’t duplicate the information of the same person.

3.The second registration application for the same person should not be accepted.

4.The system should not spy on the customer's privacy.

5. The system mustn't schedule wrong medicine for the patient.

6.The system shall not provide inaccurate or outdated information on preventative care.

7. The system shall not provide inaccurate or harmful advice or support.

8.The system shall not provide inaccurate or outdated information that could mislead the patient about their health status.

10. The system shall not disclose any information about the patient's condition for unauthorized personnel or third parties.

12.The system shall not provide exercises that are inconsistent with the patient's health condition.

13.The system mustn't wake the user for any reason unless it wasn't emergency notification.

14.Healthcare facilities must not engage in fraudulent billing practices or overcharge patients for services they did not receive.

SubSystem Identification:

	Services Names	Service Functions	Function Interfaces
1)	Occurrence of emergency situation	send message if any accident happens Sending instructions for the hospital	Public string sendMessage(String message) Public string SendInstruction(String Instructions)
2)	Collecting health data	_ Collect the information data about the patient like (name,age,gender,height,weight, Blood_pressure ,heart_rate) _ Revise his latest report and compare it to the new one	Public String name(String name) Public String gender(String gender) Public int age(int age) Public int height(int height) Public void weight (double weight) Public void blood_pressure (int blood_pressure) Public void heart_rate(int heart_rate) Public String revise_data(String revise_data)
3)	Smart device	_ Help to know any change in vital signs. _ Send reports periodically _ send alert to emergency contact _ when any changes happen system detect	Public String checkVital_Signs(String checkVital_Signs) Public string PerodicReports (String PeroidcReports) Public void ContactEmergency(int ContactEmergency)

			Public String changesystem(String changesystem
4)	latest news about preventative care	_prevent from infections and diseases _show the latest news	Public void prevent(String prevent) Public String ShowNews(String ShowNews)
5)	Showing doctor work address and his free schedule	-Data information about doctor(name,address ,schedule,available day)	Public String name(String name) Public void address(String address) Public void schedule(String schedule) Public Boolean availableday(String avaliableday)
6)	Psychology support	_ save the secure of patient information(name,age,gender,problem	Public void Secure_Information (String name,int age,String gender,String problem)
7)	Body mass index	_calculate BMI by using his weight and height ($\frac{w}{h^2}$) _ Give advice to adjust BMI	Public void weight(double weight) Public void Height(int height) Public void Calculate_BMI(double weight,int height) Public void advise_BMI(String advice)
8)	monitor daily calorie burn	_Calculate the workout activities _calculate daily approximate calorie burn _See calorie burn apps	Public void CalculateWorkout(int Workout) Public Void CalculateCalorieDaily(int CalculateCalorieDaily) Public String calorieApp(string calorieApp)

9)	sleep duration	_ Record sleep duration(when he wake ,sleep) _send report about sleep ratio	Public String sendReport() Public Void Record_Sleep(int hours) Public void Record_wake(int hours)
10	Weekly report	_recognize health patterns _Compare the last report and new report ,see which report is best	Public String Compare_Report(String Report) Public String last_Report(String last_report) Public String New_Report(String New_Report)
11	Making weekly diagrams	help patient to know active time - help patient to know monthly burn calories. - help patient to know the rate of changing in the weight	Public void Rate_weight(int rate) Public void CaloriesDataMonths(String CaloriesDataMonths) Public void ActiveTime(int hours)
12	Remind patient with annual checkups	-Gives the patient alert before the next time for checkup	Public String Remind(String name,String lastdate_checkup) Public string sendMessageToPatient(String name,String meesage)
13	payment	Facilitate payment methods by adding popular payment methods like(fawry pay, vodaphone cash, visa,mastercard)	public void NotificationOfMoneytopay() public void MoneyToBePaid(String MethodOfPay)
14	Daily meals	_set suitable meals according to his sate of health	Public void SuitableMeal()

15	Drugs interaction detection	The system see if the medicines that the doctor ordered for the patient will have negative effect on the patient if he took them in the same time	public void DoctorEnterMedicine (String Medicine) public boolean CheckDrugsInteraction () public void AcceptOrDeclineRequest ()
16	Suggest and makes plan	_manage patient daily meals _system make plan commensurate with his sate of health _recommend fitness apps according to patient condition	Public void manageDailyMeal() Public string stateHealth(String state) Public void recommendApp()
17	Communcation between patient and application	_System choose best application for the patient to communcate with each other	Public String BestAppCommuncation(String name_Patient,String App)
18	Recommendation	AI suggest the suitable doctor according to the patient's health condition.	public void suggestion () public void DoctorName()
19	Update health state	-Update the patient report	Public string UpdateReport(String report)

Traceability Matrix:

Requirements	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
17	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
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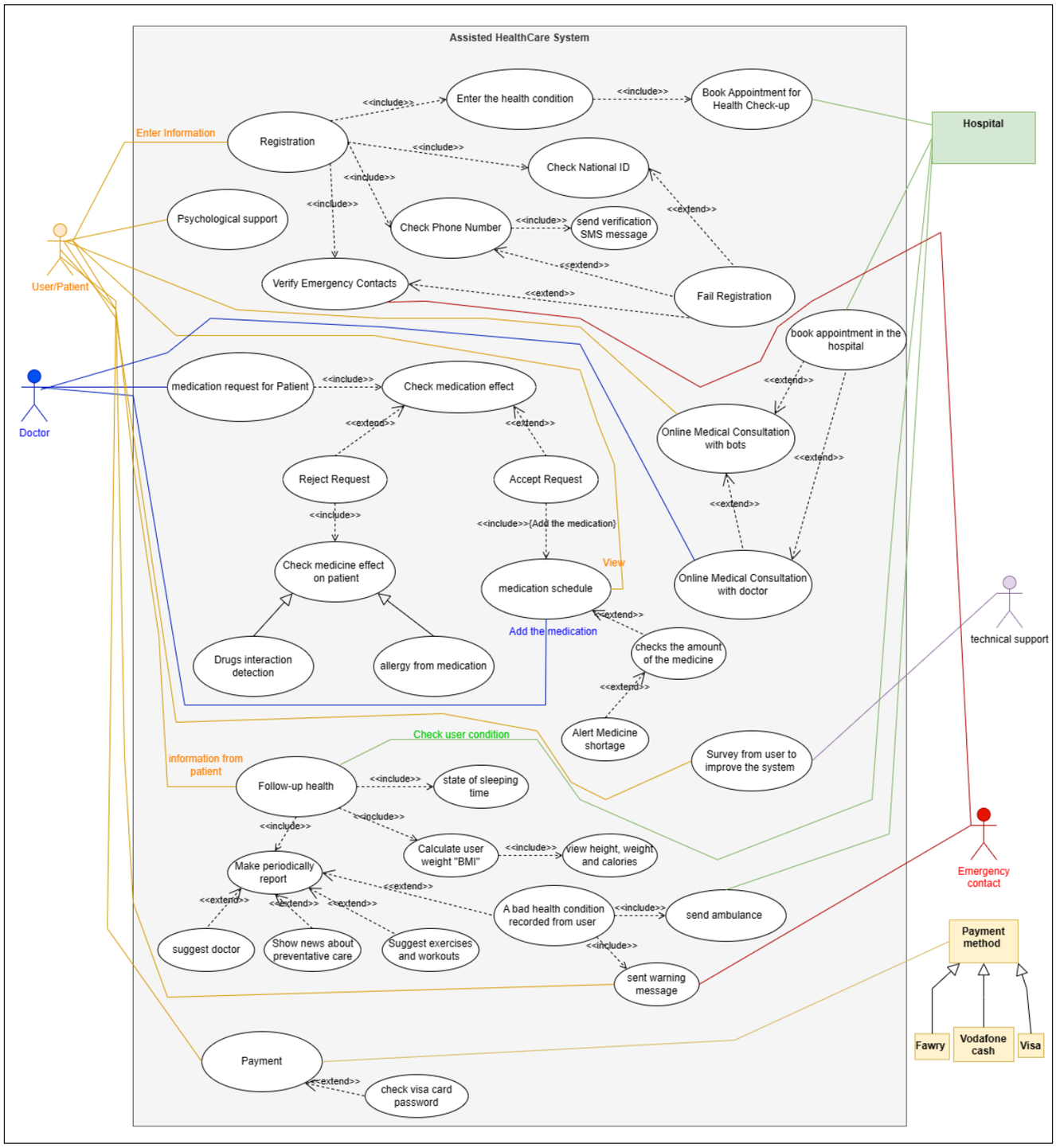
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
22	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
24	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0

Use Case Diagram:



Use Case Scenarios:

Use case 1: Payment

Interaction Scenario:

Actor Intentions	System Responsibility
1)After registering in software	2) System opens payment screen
3)enter the required data (Card number, name holder, expiry date)	4) Check the rights of data entered and there is enough money
	5) get responds either done or not
6) finally success registration or not	

Description:

After user registered in the software to take license he should pay 5 dollars in month to use license, user should pay with Visa , MasterCard

Use Case	Payment
Goal in context	pay for registration in the software to take license
preconditions	Complete registration information
Success Condition	The money transferred successfully
Fail Condition	Invalid Transaction
Primary actor	User
Secondary actor	Payment methods (Vodafone cash, fawry and visa)
Trigger	User want to pay for registration in the software

Test Requirements:

- Validate if the member transactions are updated
- Validate if the member transactions are shown in the table.
- Validate that the transactions are successfully completed.
- Check what happens if payment process fails
- During the payment process check error pages and security pages.
- Validate if the OTP code sent to the customer.
- During the payment process, try to change the language of the payment gateway.
- During the payment process check what happens if the session ends.
- During the payment process check what happens in the backend.
- After successful transaction check if the payment gateway returns to your application

Use case 2: Read from device

Interaction Scenario:

Actor Intentions	System Responsibility
1-wearing the smart device	2- The system read the heart beats
	3- The system start calculate distance covered
4-The patient want to do sports and he goes to run	
5-After he finished running the patient want to know his heart beats and distance covered	7- The system displays his heart beats , distance covered , calories consumed and goals
8- The patient had a highly change in vital process.	9- The system send a warning message.
	10- The system send to ambulance to help the patient

Description:

The patient want to know his vital signs and also want the system to monitoring it to be safe if any health problem happened to him.

Use Case	**Read from device**
Goal in context	Help patient to know vital signs and send notification to ambulance in emergency situation
preconditions	Reading patient data and send emergency notification
Success Condition	The ambulance get the notification from the system to help the patient and display vital signs
Fail Condition	The ambulance didn’t get notification
Primary actor	user
Secondary actor	Ambulance and system
Trigger	User need to know his vital signs

Test Requirements:

. Validate the results of calculating calories consuming by the patient

. Validate the results of calculating distance covered by the patient via GPS and sensors.

. Validate the results of measuring heart beats of the patient by sensors.

. Validate the data of the patient

. check connection with internet and signal

. check sending warning message to the patient

. check connection with the ambulance that will come to the patient location

. check location validation to help the ambulance to reach the patient

. check connection with doctor that will help the patient in the emergency condition

. Validate the information of vital signs that sends to the hospital

Use case 3: Registration

Interaction Scenario:

Actor Intentions	System Responsibility
1- The user navigates to the registration page of the healthcare system .	2- The system prompts the user to enter their information (name, age, national Id, phone number, gender)
3- The user enters his information.	4- System checks user information and the phone number that it is associated with the patient's national ID.
	5- The system sends an SMS to the user phone number.
6- The user will verify the SMS to complete his registration.	
7- The user adds emergency contact information (name, phone number, national Id)	8- The system checks the validity of informations.
9- The user enters his health condition and medical history.	10- The system book for him appointment to check his condition.
11- After user goes to hospital at his appointment	12- The system will send a verify SMS with success full registration message.
13- The user will be able to access his account.	
Extensions	4a- Invalid national id and phone number. S: The system can’t complete registration process and send a failed message. 8a- Invalid informations about user and emergency contact. S: The system can’t complete registration process and send a failed message. 11a) The user doesn’t go to hospital in his appointment. S:The system will stop the registration until the patient attend and gives him a new appointment.

Description:

The user will be able to access his account on system after the system verify his information.

Use Case	**Registration**
Goal in context	Allow a user to register for the healthcare system .
preconditions	The user has access to the healthcare system and is on the registration page, has a valid national ID and phone number, and has emergency contact information to add to their account.
Success Condition	The user successfully registers for the healthcare system, and their health conditions and medical history are added to their account. The system verifies the user's national ID and phone number and allows the user to add emergency contacts to their account. The patient can also book an appointment for a health check-up at a healthcare facility.
Fail Condition	The user is unable to register for the healthcare system .
Primary actor	User / patient
Secondary actor	Hospital & Database
Trigger	The user wants to register for the healthcare system.

Test Requirements:

- Verify that the system prompts the patient to enter their national ID and checks that it is valid and unique.
- Verify that the system prompts the patient to enter their phone number and checks that it is associated with the patient's national ID.
- Verify that the patient can enter their health conditions and medical history into the system during registration.
- Verify that the patient can add emergency contact information to their account and that the system verifies the emergency contact information and ensures it is associated with the patient's national ID.
- Verify that the system confirms to the patient that their registration has been successful, and the patient can access their account and view their health information and appointment details.

Use case 4: **Follow up health**

Interaction Scenario :

Actor Intentions	**System Responsibility**
1) After registered on the system	2) The system requests the entry of health data
3) Enter your health data (your medical condition, required medications, height and weight, types and times of meals)	4) The system collects all this data and puts it in the database
	5) The system conducts comparisons between patient data and ideal medical data
6) When the patient wants to know his health condition, he asks the system	7) The system displays the patient's health condition based on the information it analyzed
8) Finally, the success of the health follow-up process	
Extension:	5a) The system recorded bad health condition from the user S: The hospital sends ambulance and the system sends warning message to the emergency contacts and the user

Description:

This feature constantly monitors the patient's health condition based on the analysis of the information given

Use Case	**Follow up health**
Goal in context	Follow-up of the patient's health condition and inform him about it
preconditions	The user enter his medical information completely and correctly .
Success Condition	Show the patient's health condition correctly
Fail Condition	Show incorrect information about the patient's health condition
Primary actor	user
Secondary actor	Database system
Trigger	User want to follow up his health stute

Test Requirements:

- Verify that patient information is constantly updated
- Check with the user that the patient data is entered in the appropriate place
- Verify that this data is stored correctly
- Testing the artificial intelligence of the system in its analysis of the patient's condition
- Periodically checking the database and comparing it with the ideal medical condition
- Verify that the database is updated based on the latest update in the medical field
- Verify that the user is taking the appropriate treatment
- Verify that the patient receives a notice of his health condition
- Test the system if there is a risk to the health of the patient
- Verify that the system correctly displays the patient's condition

Use case 5: Medication schedule

Interaction Scenario:

Actor Intentions	**System Responsibility**
1)The doctor send to the system the medicines of the patient	2)The system check if the medicines are existing or not
3)The doctor wait for the acceptance request from the system	4)The system must return back to database to check the patient account if he had allergy with this medicines or not or drugs interaction detection
	5)After the system check the database,the system accept the request and add the medication medication schedule
6)Patient open his account and see the Medication schedule which include (Medicine time ,Medication doses ,quantity of the medicine)	
Extension:	Extension: 4a) The user suffers from allergies from the medication. S: The system refuses to accept the request from the doctor 4b) there will be negative effects from interaction of medicines. S: The system refuses to accept the request from the doctor

Description: **Medicine schedules make up the classification system used to define a medication's level of risks and benefits. And, as the possible medicinal risks increase**

Use Case	**Medication schedule**
Goal in context	To check the quantity of the medicines, ensure that medications are taken at the right time, in the right dose, and in the right way
preconditions	Check medication effect
Success Condition	Patient see the Medication schedule in his account
Fail Condition	Reject Medicine
Primary actor	Doctor
Secondary actor	System ,Database
Trigger	Help improve treatment outcomes, prevent medication errors and complications, and increase overall health and well-being

Test Requirements:

. Verify that the Patient must have an account to let the system check his last report and add the medication schedule

. See the patient report and the last quantity of the medicines

. Send the prescription to the system

. Check if the medicine is existing or not

. Check the information of the patient from the database

. Wait for the acceptance request from system to make the medication Schedule

. If system reject request, check medicine effect on patient

. If he had an allergic from this medicine, the system send to the doctor to change the medicine by new one

. If system accept request, add a medication to a medication schedule

. Open the account

. See the medication schedule

. See Medicine time, Medication doses ,quantity of the medicine

Use case 6: Online medical consultation with bots

Interaction Scenario:

Actors Intentions	**System Responsibility**
1) The user navigates to the Online medical consultation with bots page of the healthcare system.	2) The system asks the user to enter his question
3)The user can enter his question by writing it or by voice note.	4)The system returns to the database to see the information of the user to know what diseases he suffered from before and if he had any allergy.
	5) using big data and AI, the chat bot in the system replies to the user.
6) The user can request to make the online medical consultation with real doctor or book an appointment with the doctor in the hospital.	
Extensions	5a) The bot fails to understand the user health condition. S: The online medical consultation go directly with a real doctor. 6a) The user chooses to make an online medical consultation with a real doctor.

	S: The doctor enters with the user and talks with him through chat or video call. 6b) The user wanted to book an appointment with the doctor in the hospital. S: The system shows the user the available appointments , then The user chooses the appointment time and the system confirms it .

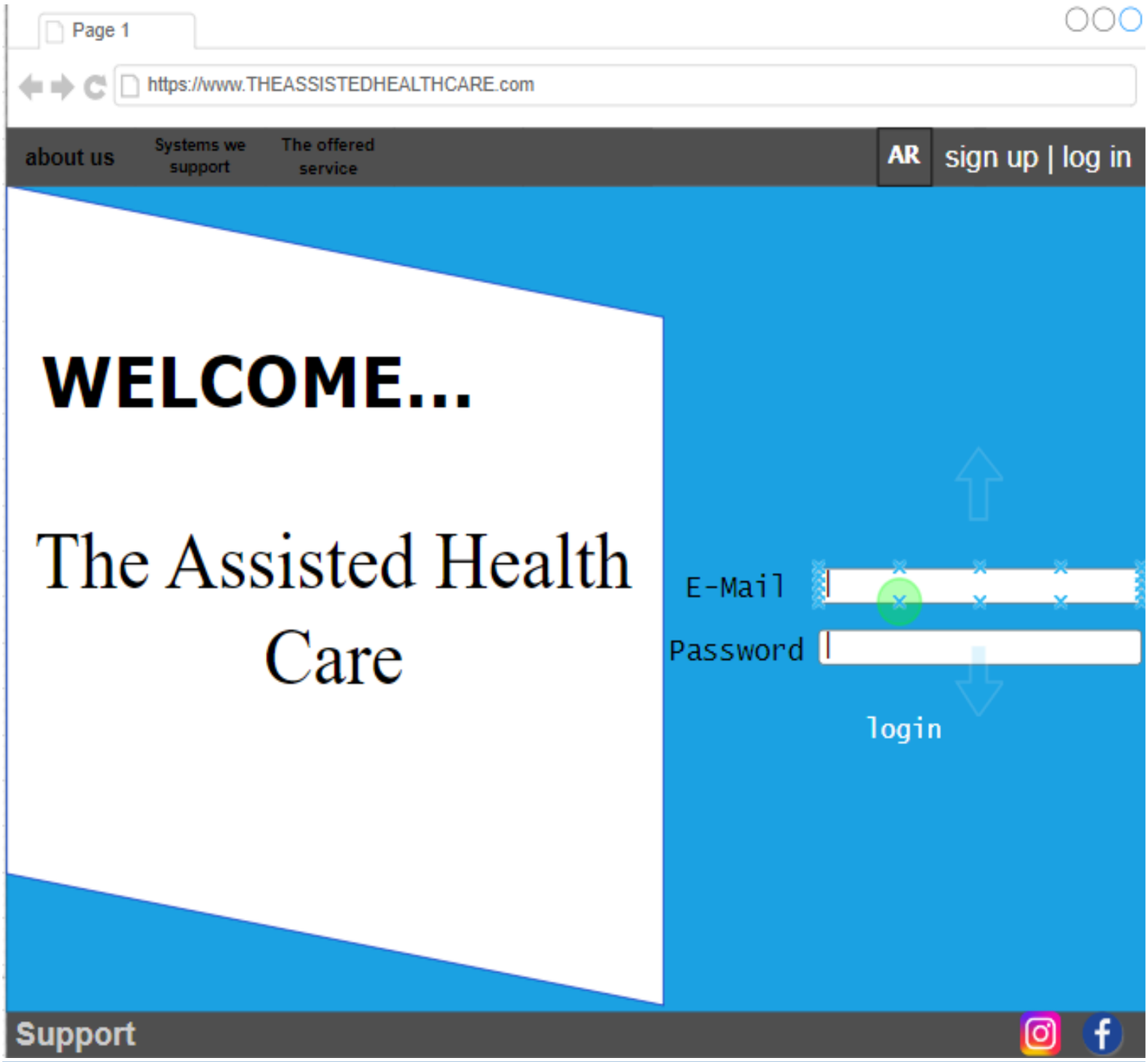
Description: The user have an online medical consultation with bots ,using AI, big data and database

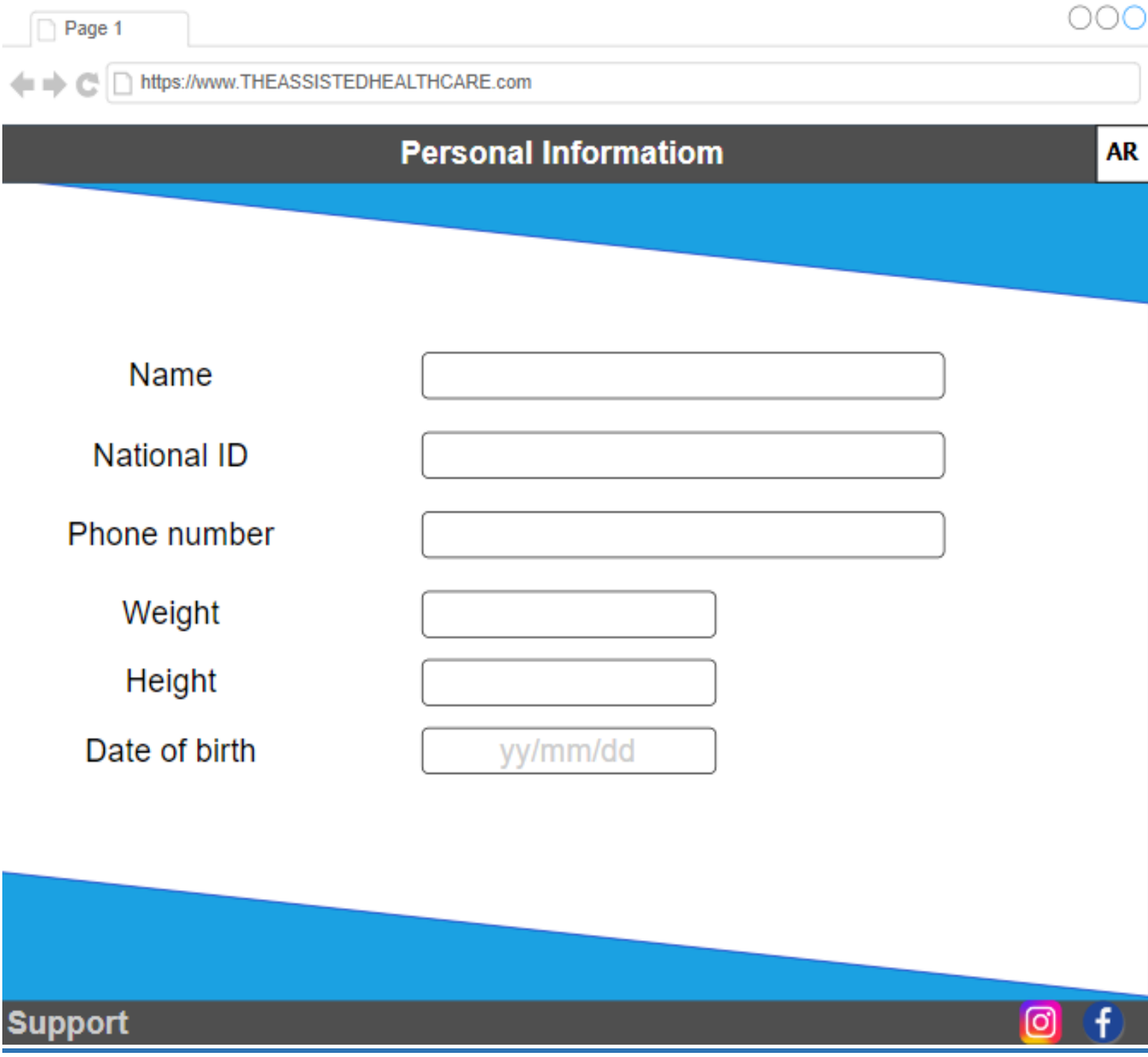
Use Case	**online medical consultation with bots**
Goal in context	to facilitate the client's knowledge of his health condition
preconditions	The user should have registered in the system
Success Condition	The user successfully knows his health condition fast and by an easy way, and he can book appointment with the doctor easily if he want.
Fail Condition	The user is unable to know his health condition and can’t book an appointment with the doctor or enter an online medical consultation with doctor.
Primary actor	User / patient
Secondary actor	Doctor & Hospital
Trigger	The user wants to talk medical consultation.

Test Requirements:

- The system check the language that the user will talk with.
- Verify that the reply from the user is full meaning and the chatbot can understand it.
- Verify that the appointment that the user have chosen it will be available with the doctor too.
- Verify that the user's condition is not critical unless that hospital sends an ambulance immediately.
- Verify that the user understands and is now more aware of his health condition.

Graphic User Interface:




Page 1
https://www.THEASSISTEDHEALTHCARE.com
Personal Informatiom
AR
Name
National ID
Phone number
Weight
Height
Date of birth
yy/mm/dd
Support

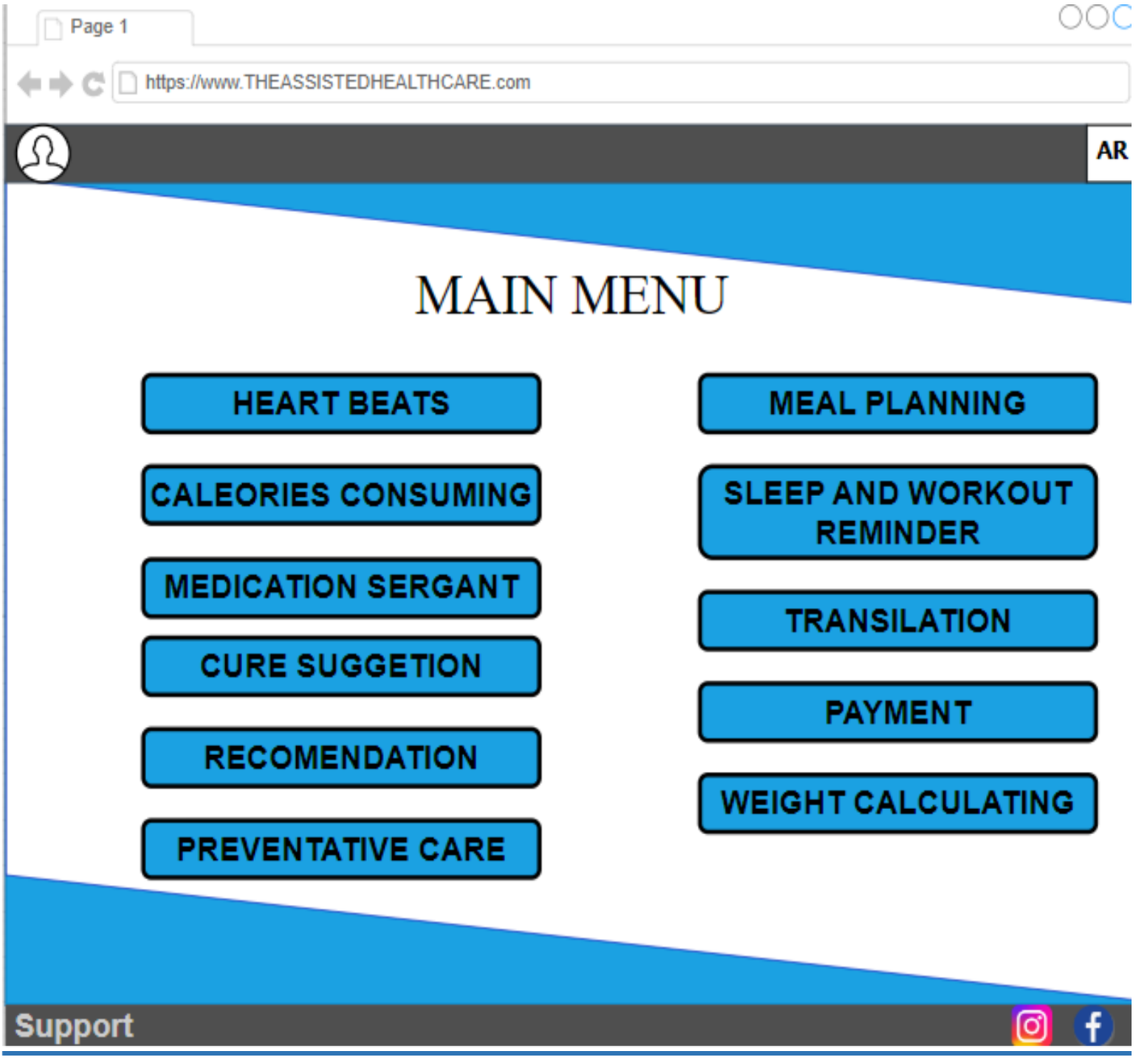
Emergency and medical details

AR

First emergency contact

Second emergency contact

Do you suffer from any chronic diseases ?


Page 1
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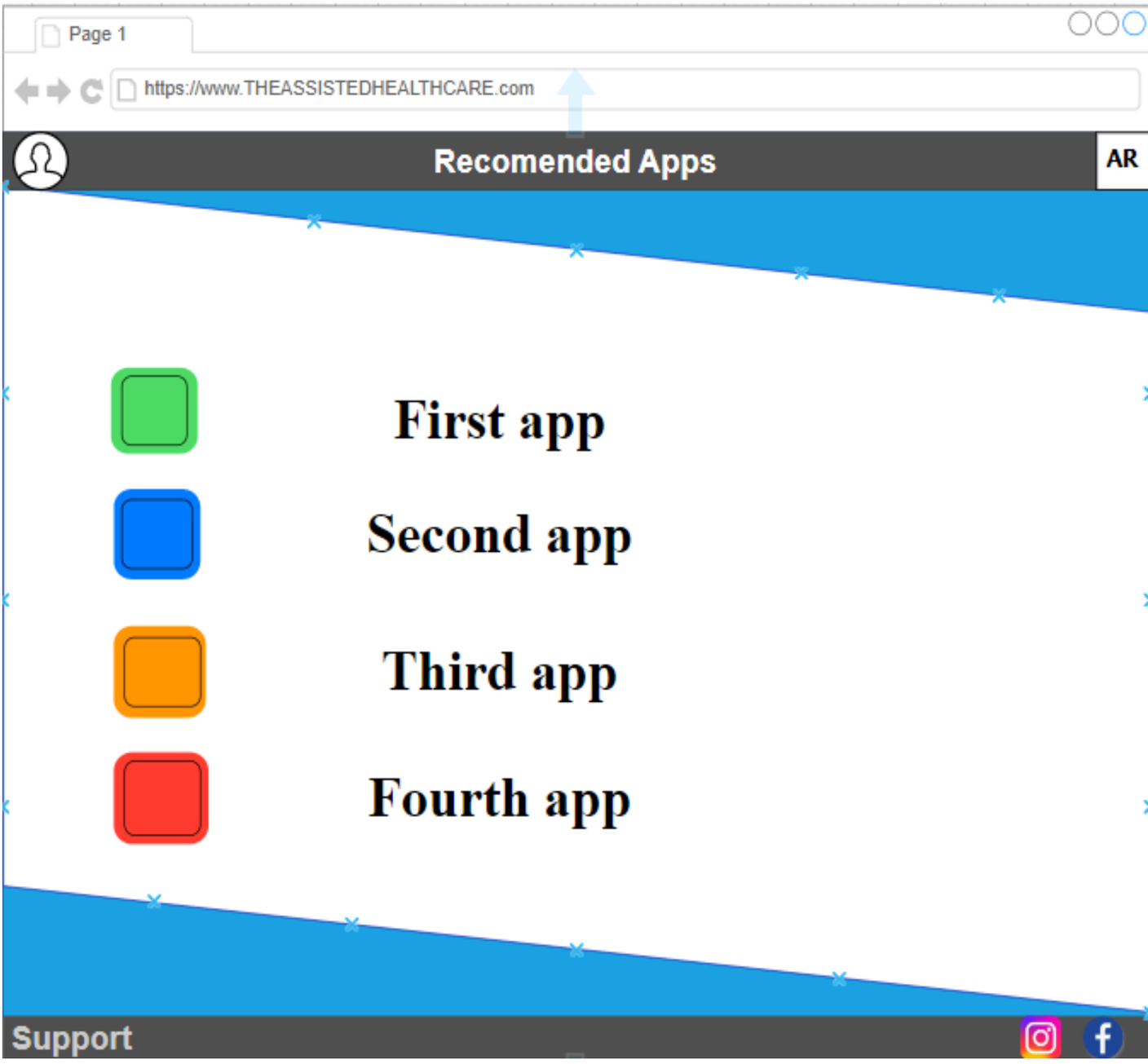
AR
MAIN MENU
HEART BEATS
CALEORIES CONSUMING
MEDICATION SERGANT
CURE SUGGETION
RECOMENDATION
PREVENTATIVE CARE
MEAL PLANNING
SLEEP AND WORKOUT REMINDER
TRANSILATION
PAYMENT
WEIGHT CALCULATING
Support


Page 1
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Recomended Apps
AR
First app
Second app
Third app
Fourth app
Support

Page 1

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Meals Planning

AR

WEEKLY MEAL PLANNER

WEEK OF _____

MONDAY

TUESDAY

WEDNESDAY

THURSDAY

FRIDAY

SATURDAY

SUNDAY

GROCERY LIST

INVENTORY

Support

Page 1

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Perventative Care

AR

Support

Page 1

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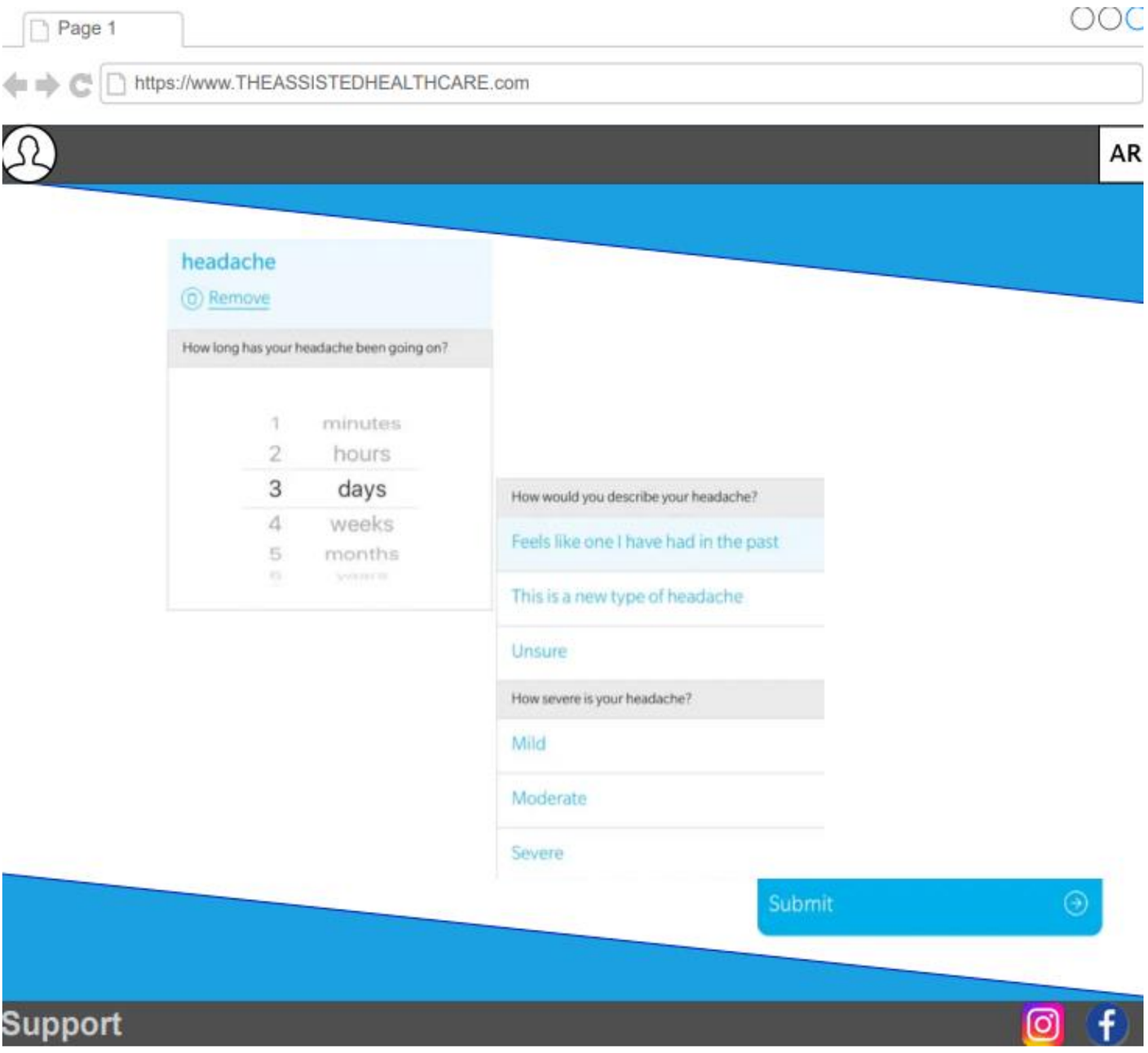
AR

CHAT BOT
IN DIGITIZED HEALTHCARE

next

Support


Page 1
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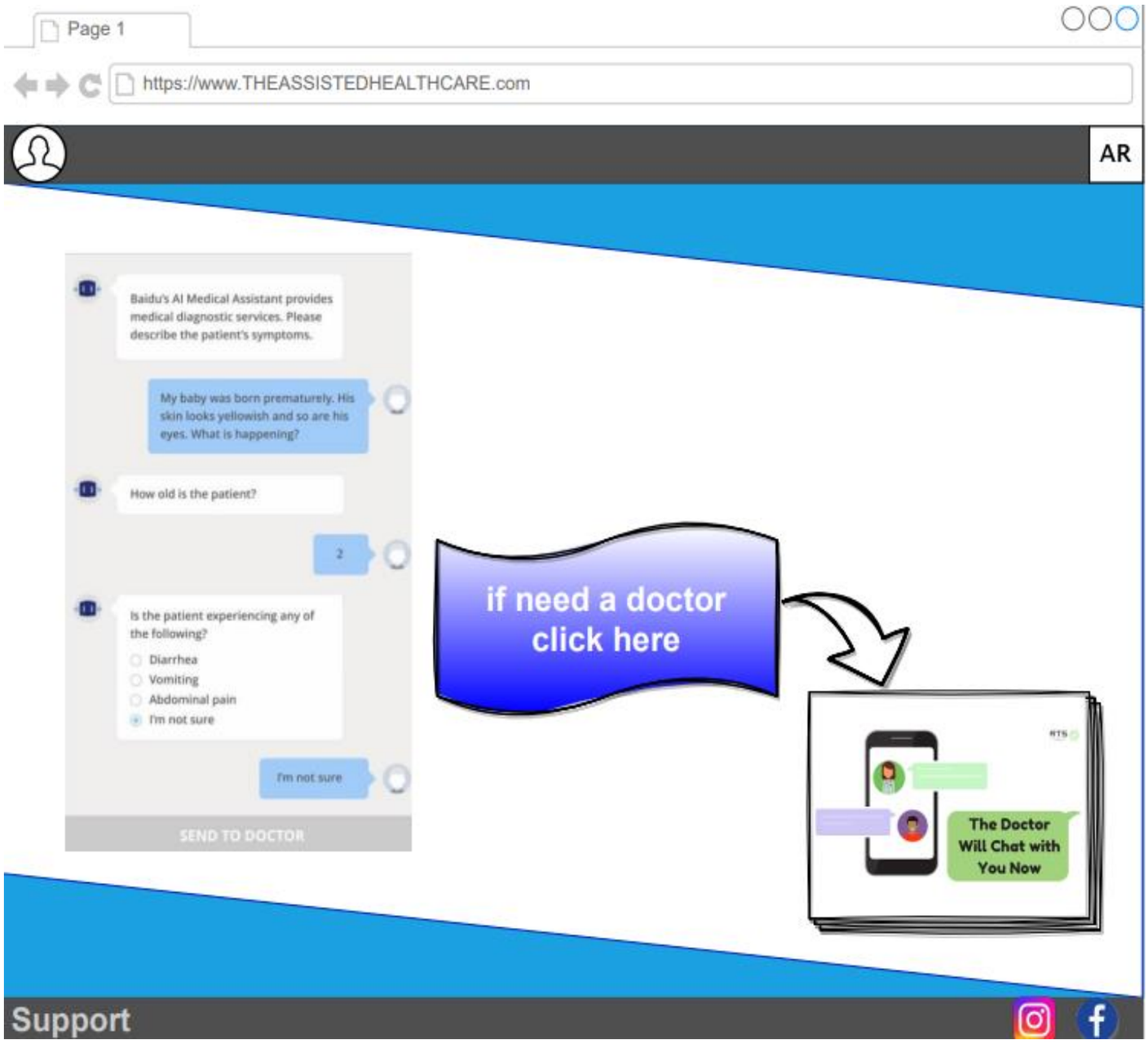
AR
headache
Remove
How long has your headache been going on?
1 minutes
2 hours
3 days
4 weeks
5 months
How would you describe your headache?
Feels like one I have had in the past
This is a new type of headache
Unsure
How severe is your headache?
Mild
Moderate
Severe
Submit
Support


Page 1
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AR
Baidu's AI Medical Assistant provides medical diagnostic services. Please describe the patient's symptoms.
My baby was born prematurely. His skin looks yellowish and so are his eyes. What is happening?
How old is the patient?
2
Is the patient experiencing any of the following?
Diarrhea
Vomiting
Abdominal pain
I'm not sure
I'm not sure
SEND TO DOCTOR
if need a doctor click here
The Doctor Will Chat with You Now
Support

Page 1

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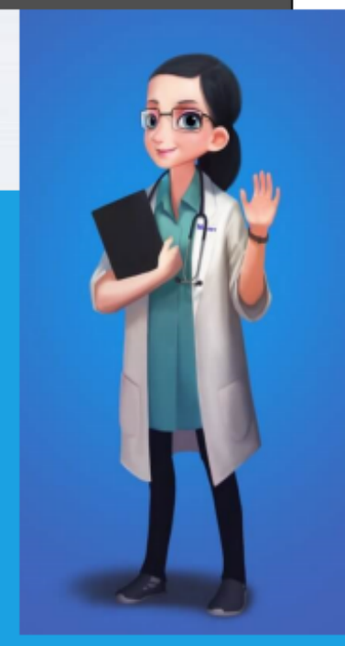
AR

BOOK AN APPOINTMENT



dayschedule

Select a Date & Time

Jul 27, 2021

JULY 2021

Sun	Mon	Tue	Wed	Thu	Fri	Sat
27	28	29	30	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

09:00 AM
09:35 AM
10:10 AM
10:45 AM
11:20 AM
11:55 AM
12:30 PM
01:05 PM
01:40 PM
02:15 PM

Select Time Zone

Asia/Calcutta (IST +05:30) 01:57 PM

next

Support

https://www.THEASSISTEDHEALTHCARE.com

Medication Sergent

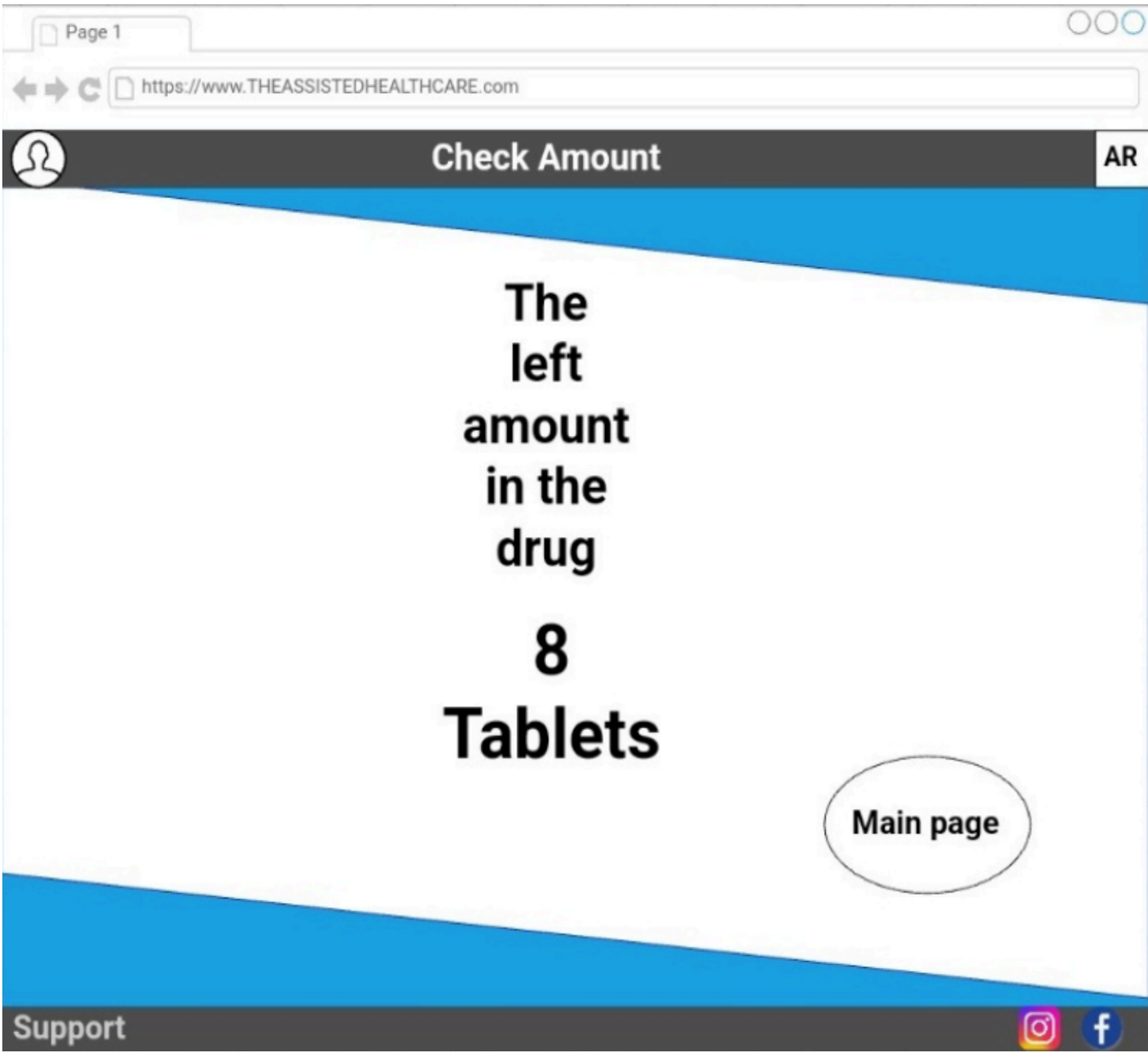
AR

Main Page

Check Amount

Set Warning

Support


Page 1
https://www.THEASSISTEDHEALTHCARE.com
Check Amount
AR
The
left
amount
in the
drug
8
Tablets
Main page
Support

Page 1

https://www.THEASSISTEDHEALTHCARE.com

Set Warning

AR

The drug is about to run out you must bring it again to complete your dose .

Support

Page 1

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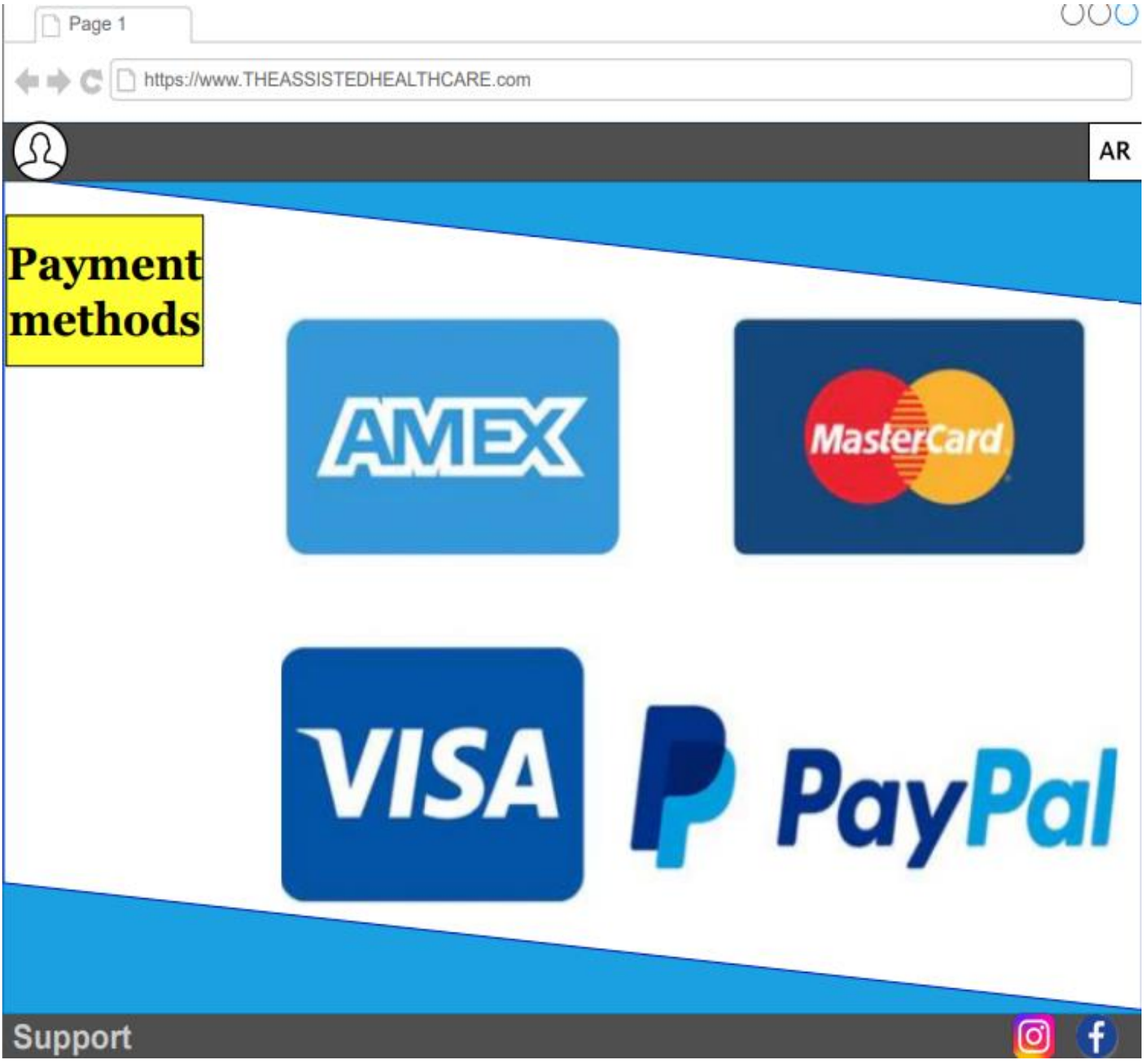
AR

Click here

PAYMENT METHOD

Support


Page 1
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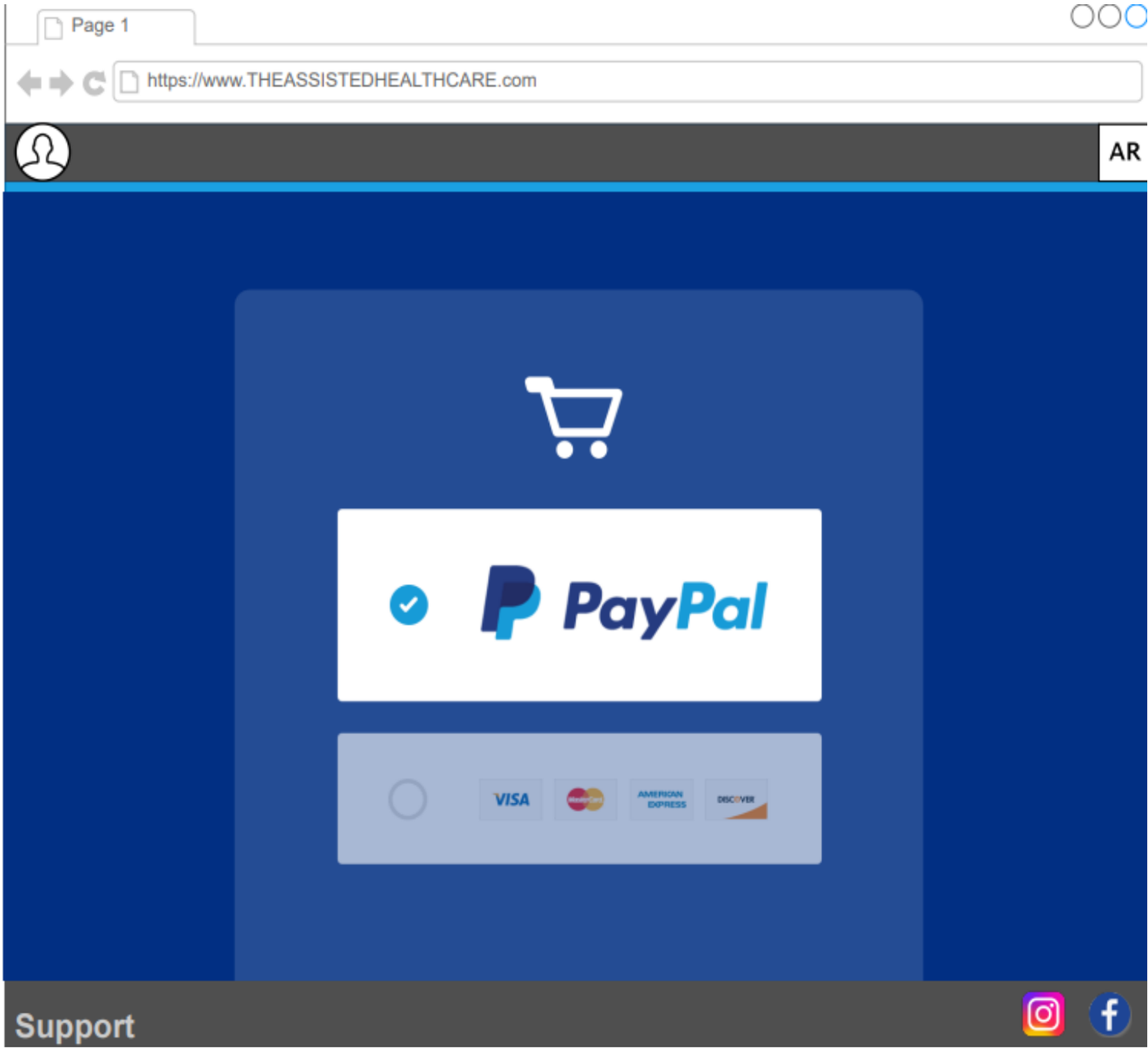
AR
Payment methods
AMEX
MasterCard
VISA
PayPal
Support


Page 1
https://www.THEASSISTEDHEALTHCARE.com
AR
PayPal
VISA
Support

Page 1

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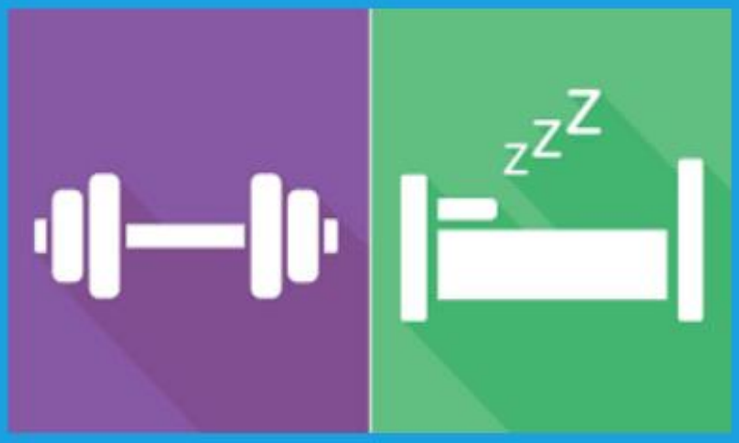
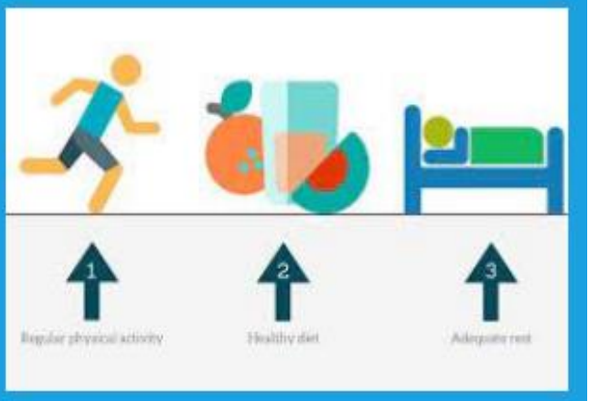
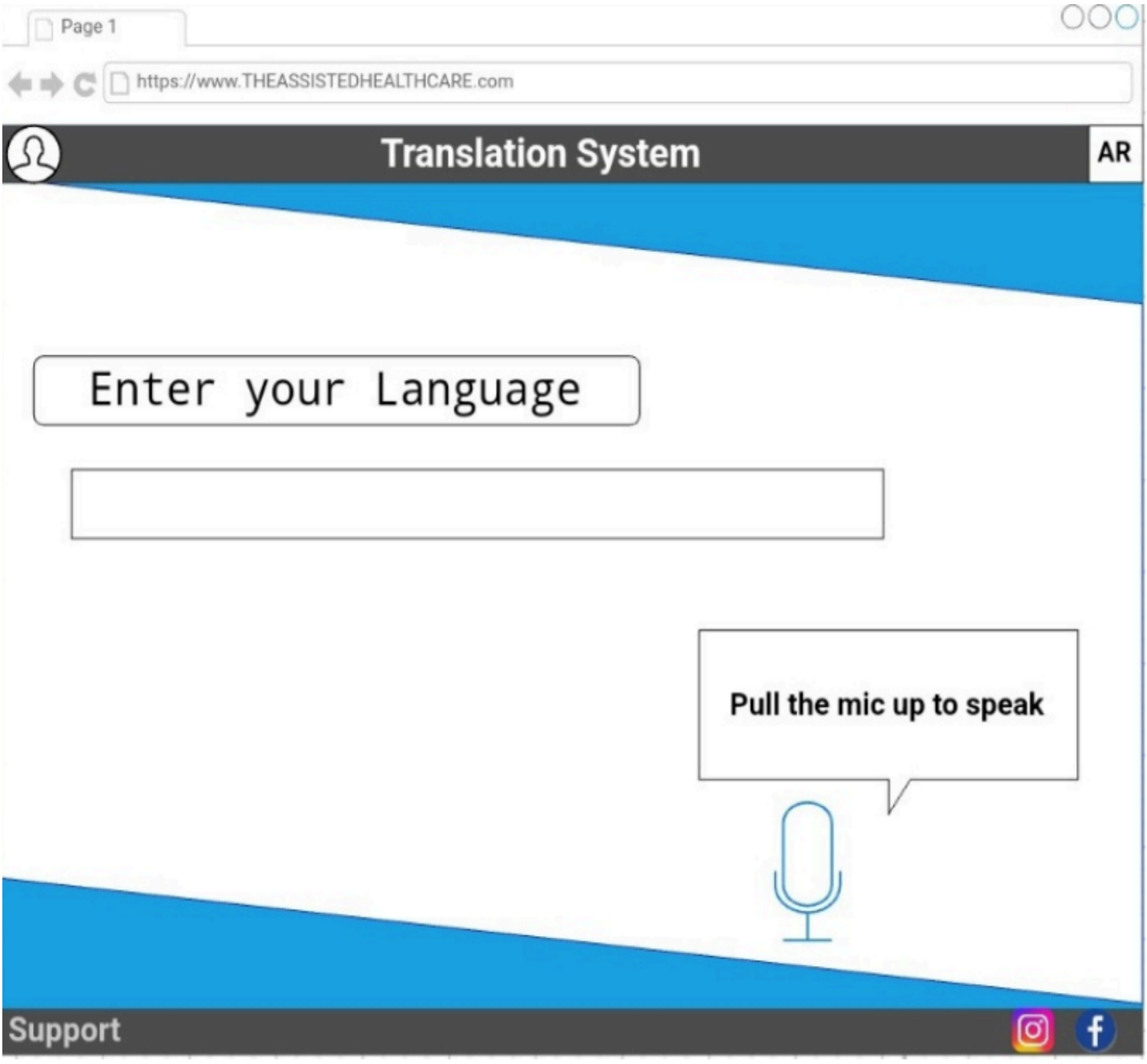
AR



sleeping time and workout time Reminder



Support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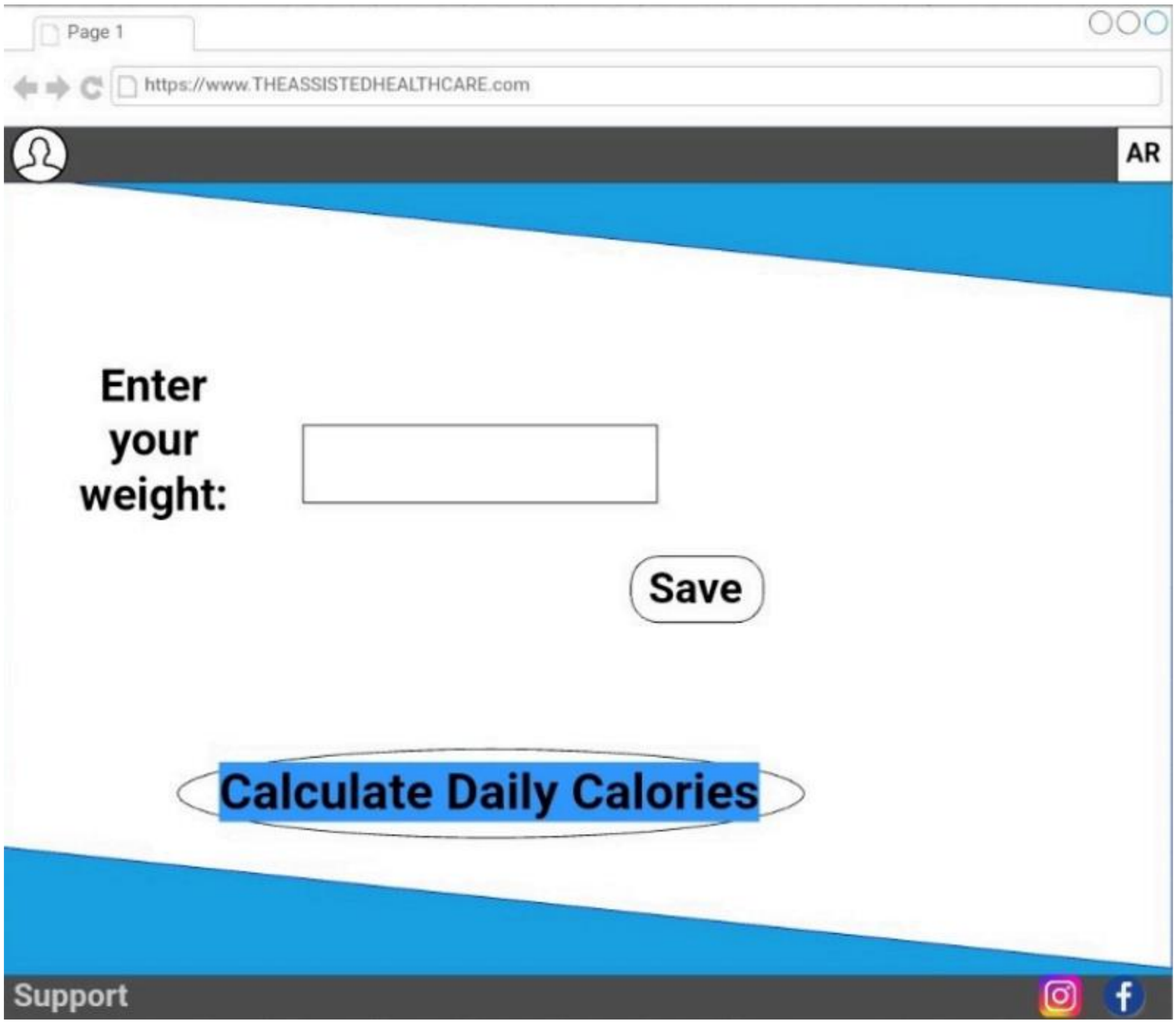
Translation System
AR
Enter your Language
Pull the mic up to speak
Support


Page 1
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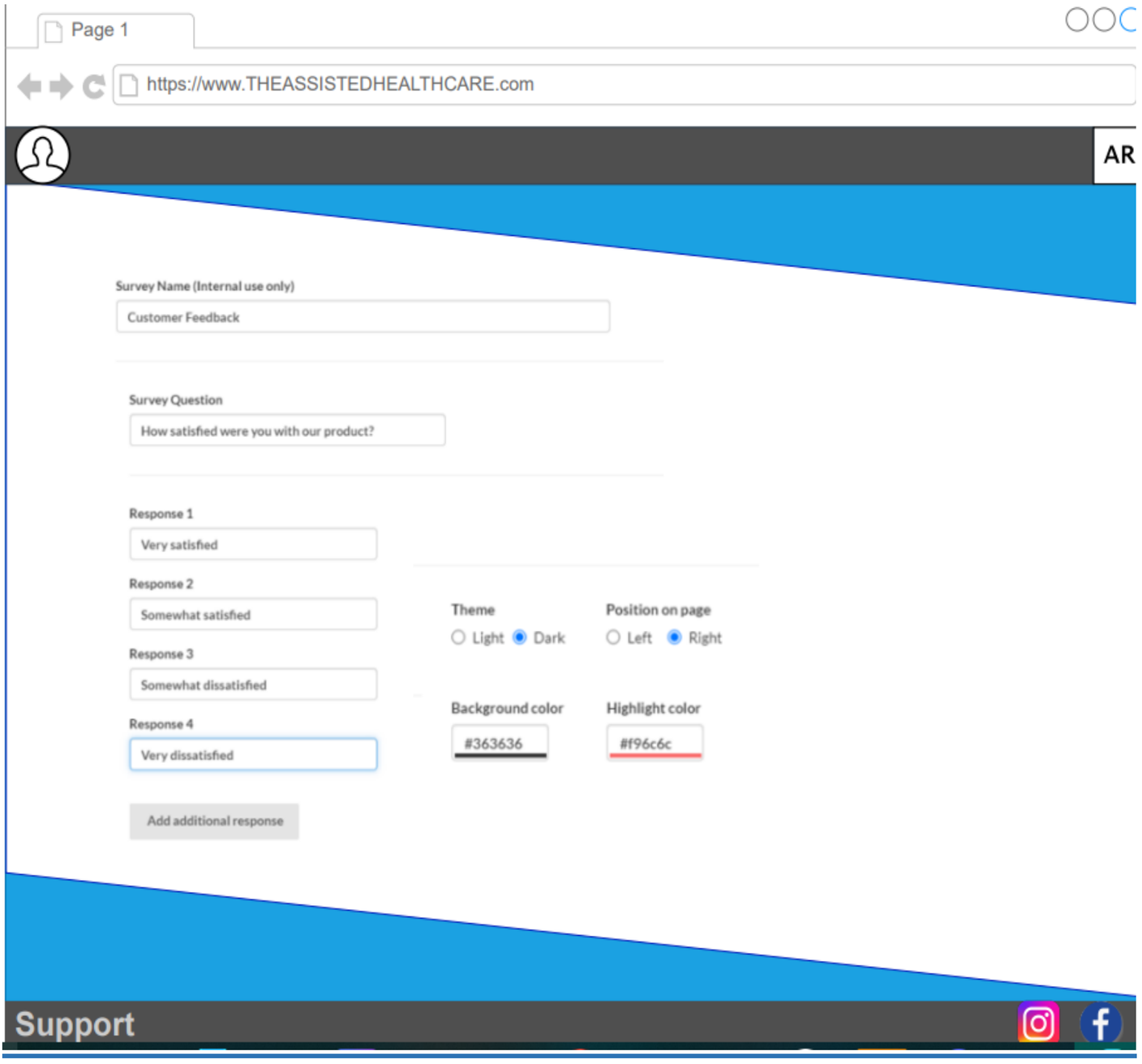
AR
Enter your weight:
Save
Calculate Daily Calories
Support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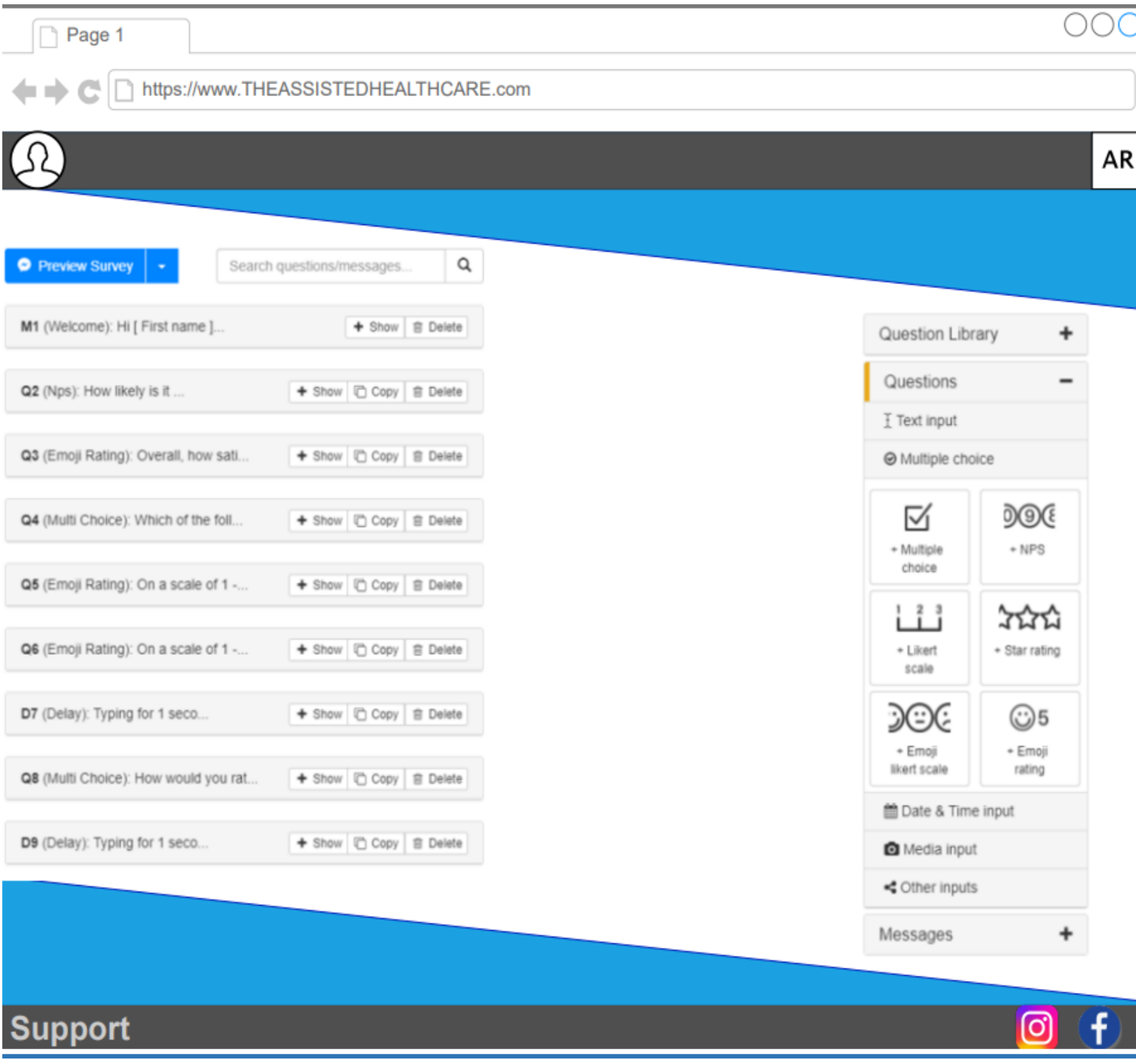
AR
Survey Name (Internal use only)
Customer Feedback
Survey Question
How satisfied were you with our product?
Response 1
Very satisfied
Response 2
Somewhat satisfied
Response 3
Somewhat dissatisfied
Response 4
Very dissatisfied
Add additional response
Theme
Light
Dark
Position on page
Left
Right
Background color
#363636
Highlight color
#f96c6c
Support


Page 1
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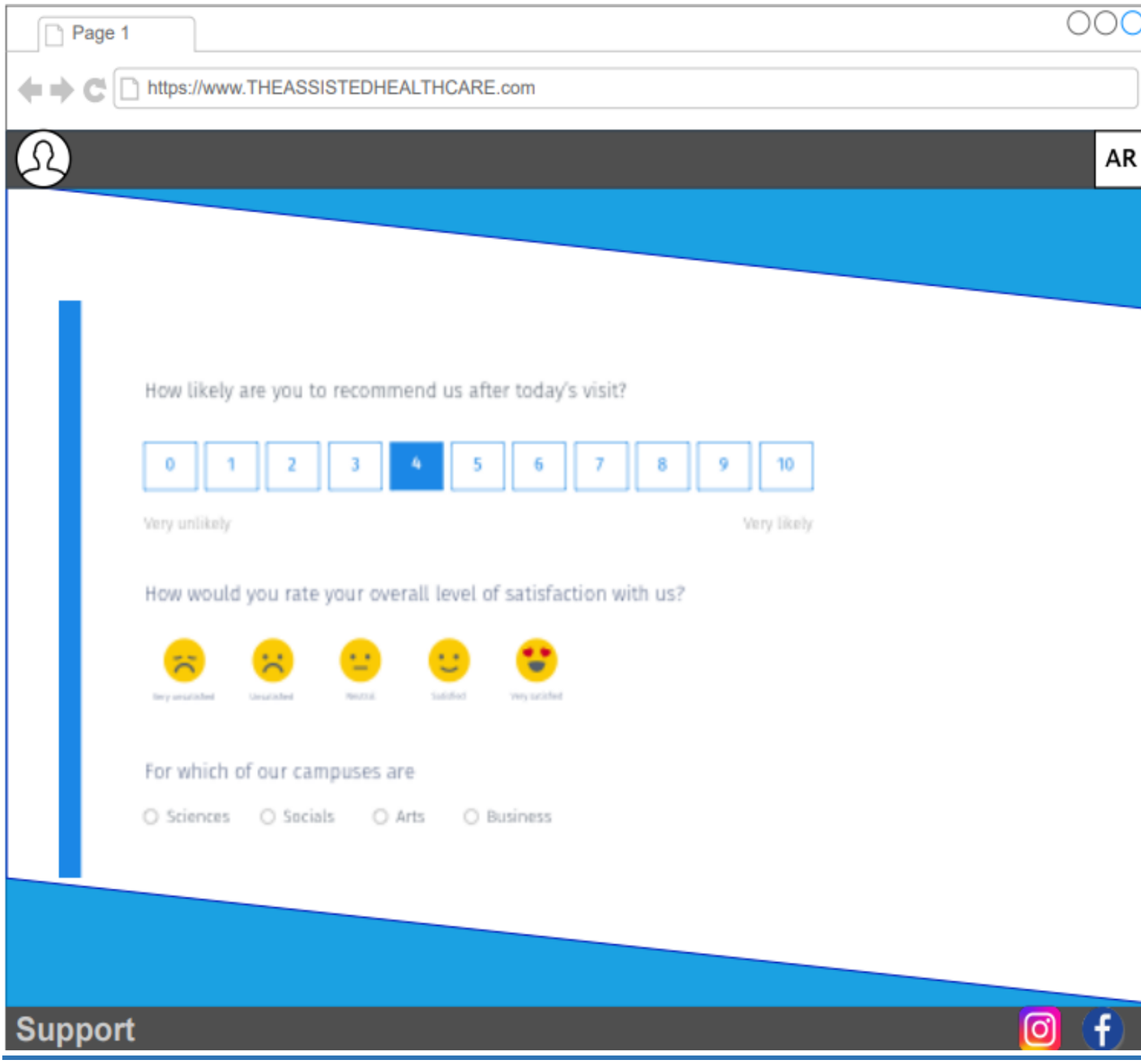
AR
Preview Survey
Search questions/messages...
M1 (Welcome): Hi [First name]...
Q2 (Nps): How likely is it ...
Q3 (Emoji Rating): Overall, how sati...
Q4 (Multi Choice): Which of the foll...
Q5 (Emoji Rating): On a scale of 1 -...
Q6 (Emoji Rating): On a scale of 1 -...
D7 (Delay): Typing for 1 seco...
Q8 (Multi Choice): How would you rat...
D9 (Delay): Typing for 1 seco...
Show
Copy
Delete
Question Library
Questions
Text input
Multiple choice
+ Multiple choice
+ NPS
+ Likert scale
+ Star rating
+ Emoji likert scale
+ Emoji rating
Date & Time input
Media input
Other inputs
Messages
Support


Page 1
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AR
How likely are you to recommend us after today's visit?
0
1
2
3
4
5
6
7
8
9
10
Very unlikely
Very likely
How would you rate your overall level of satisfaction with us?
For which of our campuses are
Sciences
Socials
Arts
Business
Support

User Manual:

1-The patient enter his email and password if exist and if not exist he will press on sign up which will help him to create a new account.

2- The patient enter his personal information which saved in patient database that help system in next steps like: name, weight, height, id, etc..

3- The patient also enter his medical and emergency data that will help him if any emergency situation happen like: sharp change in heart beats

4- After that the main menu appears which help the patient to get access to the system features that include: calories consuming, heart beats, payment, etc.

5-If the patient choose recommendation he will see the recommended apps that carefully selected for fitness according to his health condition

6-While choosing meal planning the patient could see his weekly meals will appear that arranged according to the week days.

7- The preventative care section will display the latest article about the public health and preventative care that help the patient to maintain his health.

8- The smart band shows the total calories burnt during the day, heart beats and warning message if exist

9- Choosing cure suggestion will help the patient to talk with bot that help him to Preliminary diagnostic work that helping him to know what he suffer from, also the bot suggest for him the best doctors for his case and his work time and address which help him to get a schedule.

10- If choosing medication sergeant section a main page for this section will appear and there are 2 choices check amount and set warning

11- If choosing check amount then the amount of the medicines will appear.

12- while choosing set warning will help the patient to set an alarm to warn him if the amount of the medicine decreases.

13- The payment section that helps the patient to pay the subscription

14- If clicked on click here bottom a screen of payment methods that the system support.

15- The patient will choose the payment method that is suitable for him.

16- The sleeping and workout reminder section will help the patient to track his sleeping time and workout activity.

17- The translation section asks the patient for his language, also, it support speaking voice

18- Calories calculating section asks the patient to enter his weight and height to make calculations.

19- The system will display the daily calories that should the patient consume and also there are many plans that makes flexibility for patient to choose his plan.

20-The system shows for the patient a survey which ask him about his satisfaction and if there anything need to be edited and if any problem exposed to it.