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# SMART HEALTH CONSULTATION

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## CONTENTS

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- Objective
  - Introduction
  - Literature survey
  - Proposed system
  - Architecture
  - Modules
  - Implementation
  - Comparison
  - Conclusion
  - Future work
  - Reference
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## OBJECTIVE

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To predict disease based on user symptoms and issue appointments of desired Doctors at desired time using ML Algorithms.

## INTRODUCTION

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The proposed system consists of following Actors,

- ❖ General user area
  - Help system:
  - ✓ Video tutorials and offline documentation.
  - Testimonials.
- ❖ Doctor's area
  - Daily schedule:
  - ✓ Details of appointment per day.
  - ✓ Leave management.

## INTRODUCTION(Contd.....)

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### ❖ Patient's area

- Medical data management.
- Registration for treatment.
- Billing.

### ❖ Admin

- Doctors manipulation.
- Suspension & Authorization.
- Freezing of accounts.
- Affiliation manipulation.
- Complaints management.

## LITERATURE SURVEY

Topic	Authors	Features	Pros	Con
[1].A health check and prediction system for lifestyle - Related disease prevention.	Xia Yu;Shuoyu Wang;2006	Fuzzy set theory was employed to deal with the fuzziness of degree of subject symptoms.	Updating of the medical knowledge database become easy and quick.	More complex fuzzy set is used.
[2].A semantic feature space for disease prediction	Mariam Daoud;Jimmy Xiangji Huang;William Melek;C.Joseph Kurian;2013	SNOMED-CT concepts, Biomedical text mining tool is used.	Disease prediction is based on patient reported symptoms and medical sign .	No algorithms used(based on biomedical text mining tool).

7

## LITERATURE SURVEY

Topic	Authors	Features	Pros	Cons
[3].Disease prediction using hybrid K-means and support vector machine.	Sandeep Kaur;Sheetal Kalra;2016	Uses hybrid K-means and SVM is used for disease prediction.	Uses SVM.	Customized data set is used.
[4].A novel feature selection based classification algorithm for real-time medical disease prediction.	Satuluri Naganjaneyulu;B uragaSrinivasa Rao;2018	Novel feature selection based classification model is used.	Improved disease classification rate.	Usage of customized data set.

8

## PROPOSED SYSTEM

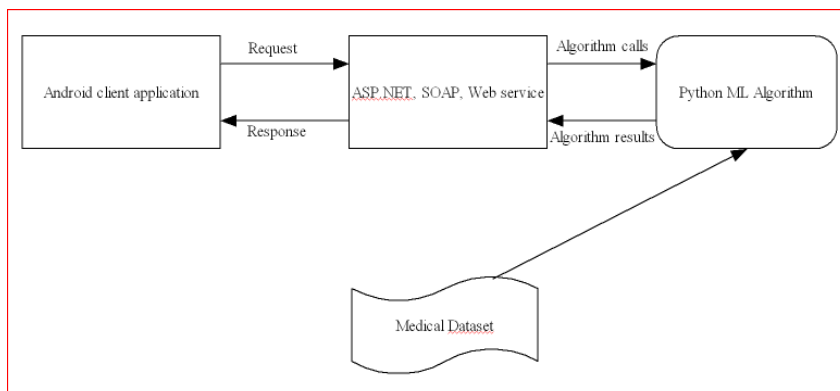
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- User need to register as a member.
  - Medical history should be updated.
  - System predicts a list of doctors as per requirements (e.g.: Orthopedic, General Physician etc.)
  - Online appointments.
  - Authorized Doctors.
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9

## ARCHITECTURE (Old)

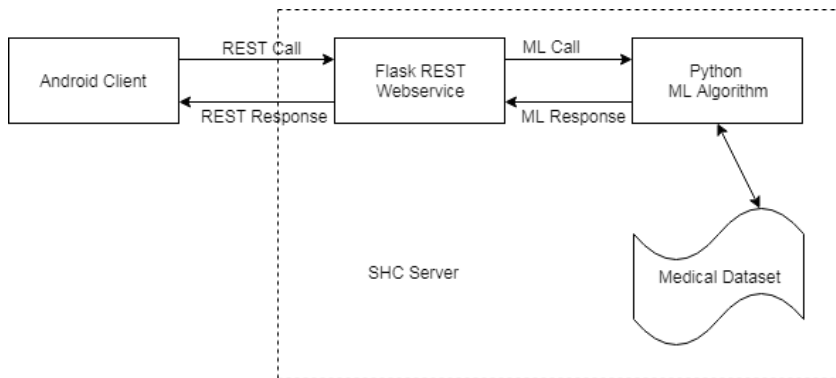
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10

## ARCHITECTURE (New)

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11

## MODULES

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- ❑ Patient
  - Registration and login
  - Medical history manipulation
  - Billing
  - Arrange Appointments
- ❑ Doctor
  - Day by day appointments
  - Duty leaves

12

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- Admin
  - Login
  - Doctor Authorization
  - User voice
  - Account manipulation

## IMPLEMENTATION

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Hardware Requirements:

Client Side

- Android Smart Phone

Server Side

- 4 GB RAM
- 160 GB HDD
- Windows 7
- Keyboard & Mouse

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## Software Requirements:

### Client Side

- At least API 19 (Kit Kat)

### Server Side

- Python with ML Libraries (Naive - Bias)
- MySQL
- Google Datasets

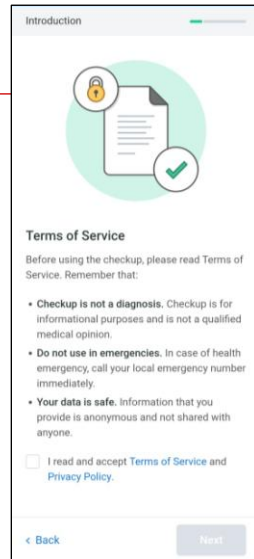
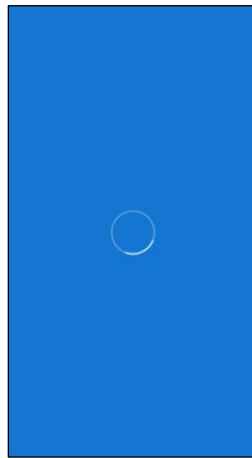
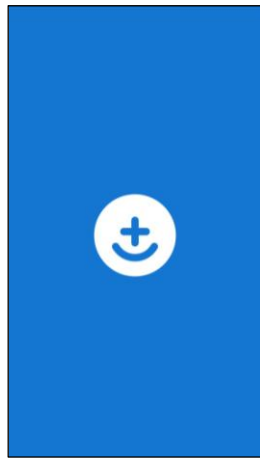
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## Algorithms

- Naive Bias Algorithm
- SVM

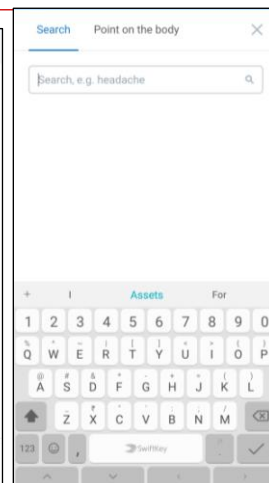
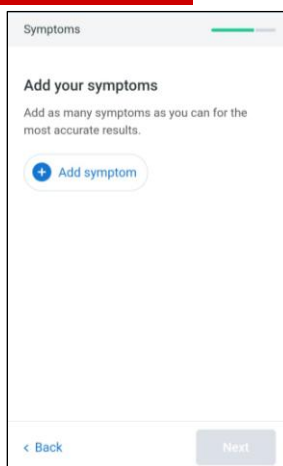
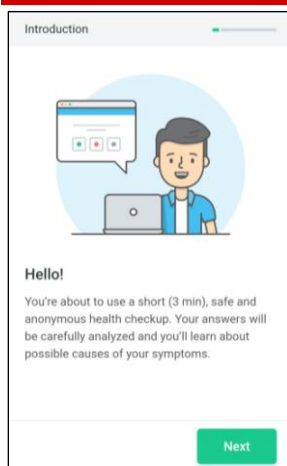


# Design Sketches



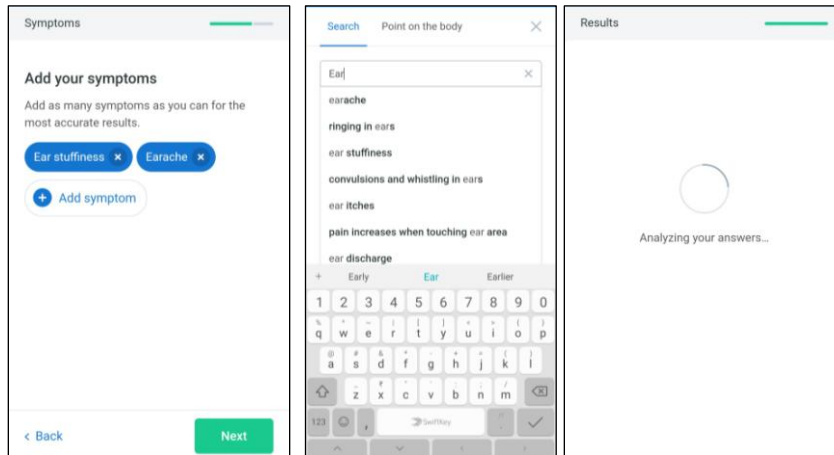
17

# Design Sketches (Cont.)



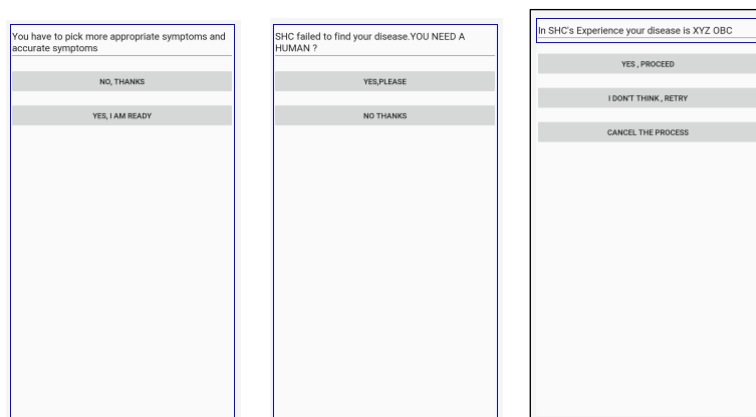
18

## Design Sketches (Cont.)



19

## Design Sketches (Cont.)



20

## Design Sketches (Cont.)

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The image shows three mobile app design sketches. The first sketch, titled 'DOCTOR'S HOME', features a header with 'ADD LEAVE' and 'GET APPOINTMENT LIST' buttons. The second sketch, titled 'APPOINTMENT LIST', shows a header with 'APPOINTMENT 1 :'. The third sketch, titled 'ADD LEAVE', includes a 'DATE :' field, a 'PURPOSE :' field, and a 'SUBMIT' button.

21

## Design Sketches (Cont.)

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The sketch shows a mobile app screen with a message: 'We need to know your current location for finding your doctor'. Below the message is a button labeled 'YES, PROCEED'.

To Done,

- Doctor List Based on Disease
- Appointment List Based on Doctor
- Payment Page

22

## Database Schemas

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Disease			
Id	Int	-	Primary, AI
Name	Varchar	150	-
Description	Varchar	500	-

Doctor			
Id	Int	-	Primary, AI
Name	Varchar	50	-
Address	Varchar	250	-
Contact_number	Varchar	15	Unique
Email_id	Varchar	50	Unique
Fee	Real	-	-

23

## Database Schemas (Cont.)

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Doctor_Diseases			
Id	Int	-	Primary, AI
Doctor_id	Int	-	Foreign
Disease_id	Int	-	Foreign

Patient			
Id	Int	-	Primary, AI
Name	Varchar	50	-
Address	Varchar	250	-
Contact_number	Varchar	15	Unique
Email_id	Varchar	50	Unique

24

## Database Schemas (Cont.)

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Slots			
Id	Int	-	Primary, AI
Slot_start	Time	-	-
Slot_end	Time	-	-

Appointments			
Id	Int	-	Primary, AI
Appointment_date	Date	-	-
Doctor_id	Int	-	Foreign
Patient_id	Int	-	Foreign
Slot_id	Int	-	Foreign

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25

## Database Schemas (Cont.)

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Doctor_Slots			
Id	Int	-	Primary, AI
Doctor_id	Int	-	Foreign
Slot_id	Int	-	Foreign

To Done,  
License\_details  
Payments  
Card\_details  
UPI\_settings

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26

## COMPARISON

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EXISTING SYSTEM	PROPOSED SYSTEM
Uses standalone single systems.	In cooperate various clients such as mobile clients, web clients etc.
Nested long if-else-ladder/complex fuzzy set.	ML technologies are used(Naïve Bias and SVM).
Uses custom made data sets.	Uses public dataset which include data for common diseases.

## CONCLUSION

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- SHC is a 24x7 online Patient-Doctor interactive system.
- Uses ML algorithms.
- Location based service.

## **FUTURE WORK**

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- Enlargement of service area from small to large areas.
- Use of more accurate ML algorithms.
- Develop a specialized disease prediction ML algorithm.

## **REFERENCES**

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- [1].Xia Yu,Shuoyu Wang,"A health check and prediction system for lifestyle -Related disease prevention",2006.
- [2].Mariam Daoud;Jimmy Xiangji;Huang;William Melek;C.Joseph Kurian;"A semantic feature space for disease prediction",2013.
- [3].Sandeep Kaur;Sheetal Kalra;"Disease prediction using hybrid K-means and support vector machine",2016.
- [4].Satuluri Naganjaneyulu;BuragaSrinivasa Rao;"A Novel feature selection based classification on algorithm for real time medical disease prediction",2018.