

Developing Effective Requirements

Software Analysis and Design

Class 07

Mustafa Hasan

Requirement Elicitation





Dean

I would like to know why students do not attend events?



Students

I do not know the event schedule

I forget about them

They often conflict with my class schedule!

Problem Statement (Template by OpenUP)

The problem of	[describe the problem]
affects	[the stakeholders affected by the problem]
the impact of which is	[what is the impact of the problem?]
a successful solution would be	[list some key benefits of a successful solution]

Problem Statement (Our System)

The problem of	Not knowing the schedule of events organized by the university
Affects	Students and event organizers
The impact of which is	Lack of student engagement in university initiatives
A successful solution would be	A centralized university calendar for event scheduling through which students can register for events and manage their calendars

Product Vision (Open UP Template)

For	[target customer]
Who	[statement of the need or opportunity]
The (product name)	is a [product category]
That	[statement of key benefit; that is, the compelling reason to buy]
Unlike	[primary competitive alternative]
Our product	[statement of primary differentiation]

Product Vision (Our System)

For	Students and event organizers
Who	Organize and participate in university events
The product	UniCal is a university's unified calendar
That	Will provide a centralized calendar to schedule and register for university events
Unlike	Other products such as Outlook organizer or Google Calendar
Our system	Will be customized as per the university's academic needs

Elicitation Techniques

With User Involvement

- Interviews
- Workshops
- Focus groups
- Observations
- Questionnaires

Independently

- System interface analysis
- User interface analysis
- Document analysis

Interview

- Often one-on-one or with a small group of users
- Helps get an initial understanding of application and business domain
- Helps build rapport and get user buy-in
- Requires least preparation



Workshops

- Helps elicit requirements from multiple stakeholders concurrently
- Helps resolve disagreements among stakeholders
- Needs preparation to facilitate and a scribe to capture all stakeholder requirements and decisions
- Time effective but has scheduling challenges



Focus Groups (Large People)

- Conducted with representative users when user group is too large or inaccessible
- Users are often not the decision makers
- Helps generate ideas and understand user preferences
- Requires preparation
- Time effective but requires scheduling



Observation

- Helps capture requirements that are too complex to explain in words
- Effective in understanding how users currently perform their tasks
- Time consuming and may feel intrusive to the user
- May be silent or interactive



Questionnaire

- Effective in eliciting requirements from a large group of remote users
- Hard to prepare well-written questions
- Shorter the questionnaire, higher the response rate



Choosing the Techniques

Type of application

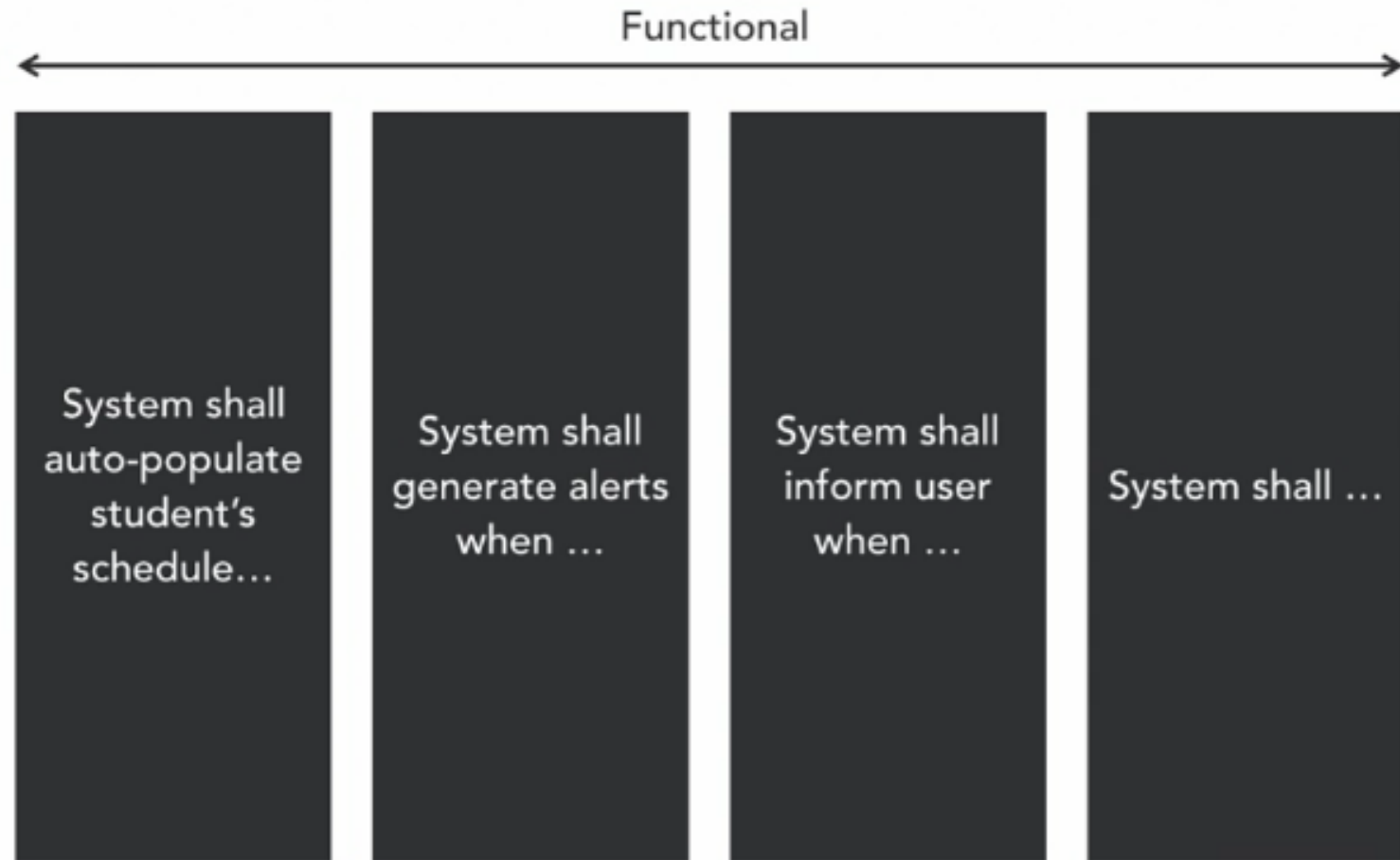
- Custom application for an organization
- Mass market product

Application domain familiarity

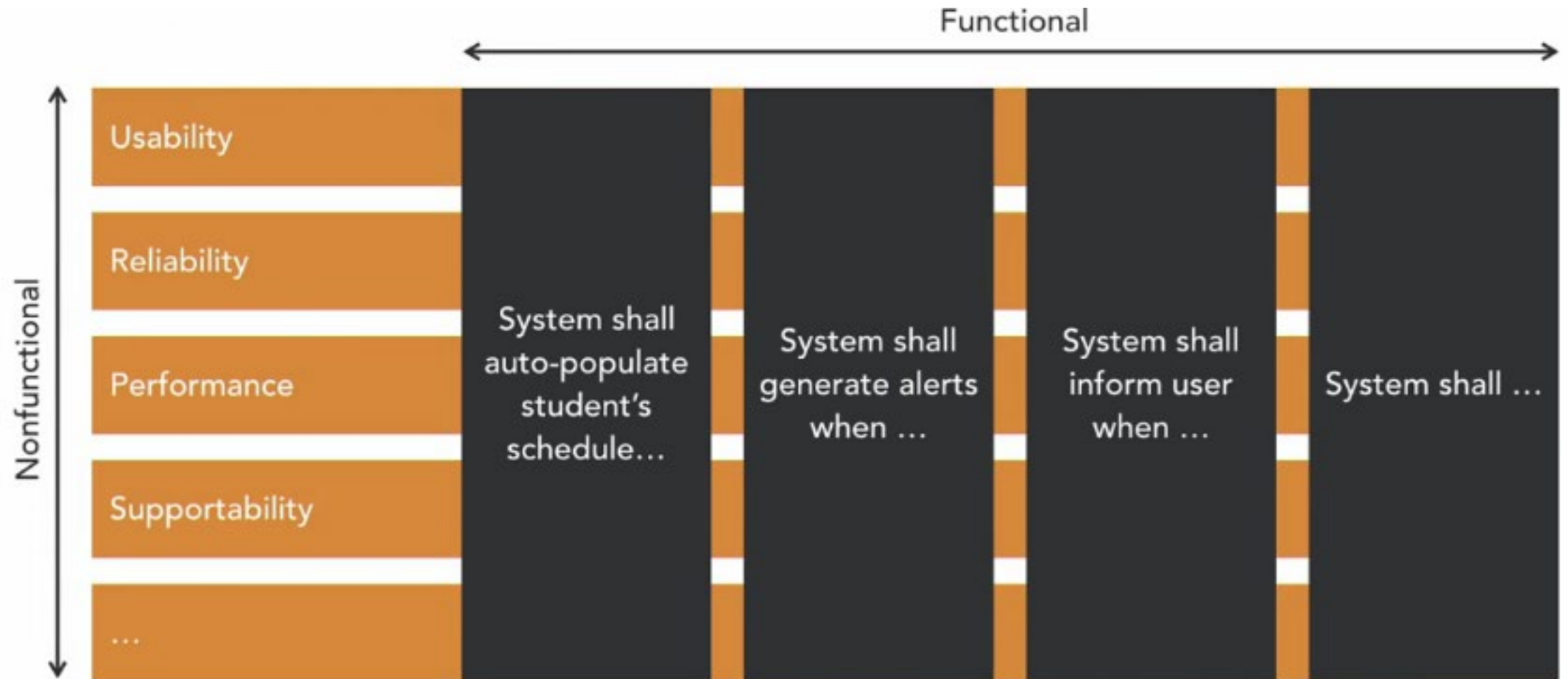
Access to user



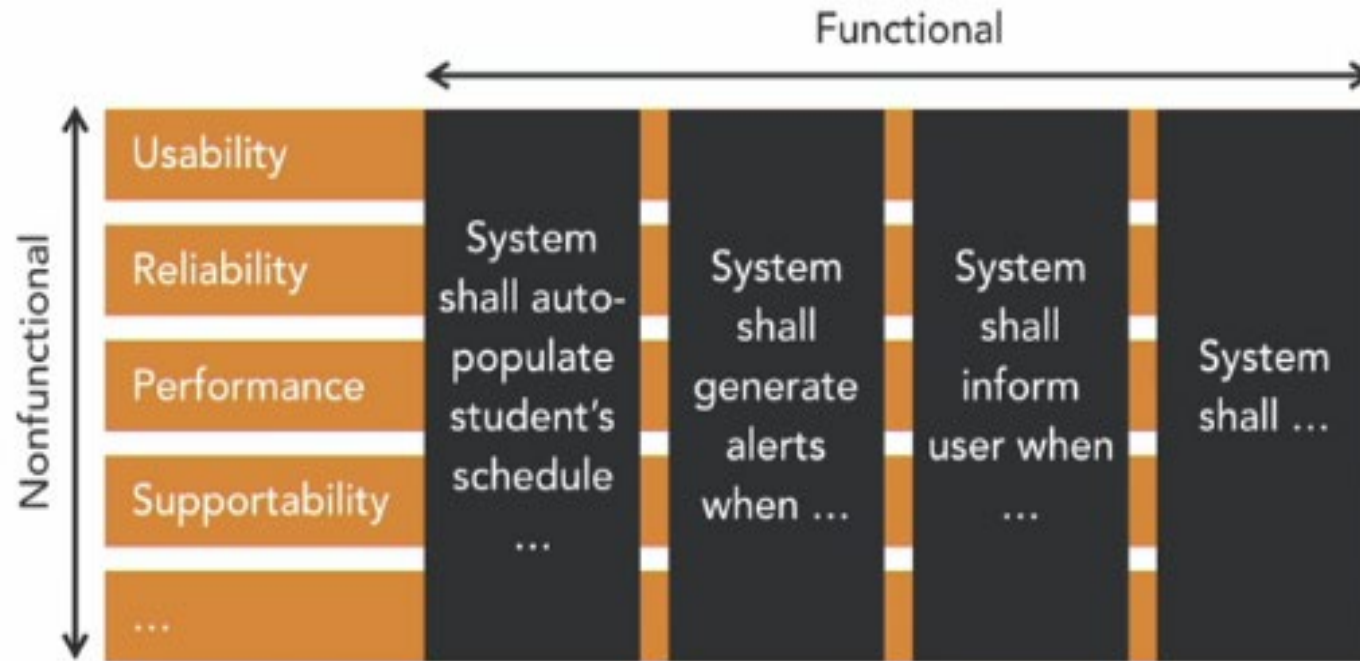
Functional Vs non-Functional



Functional Vs non-Functional



Functional Vs non-Functional



Functional

- User tasks
- Often articulated by user
- Business analyst's focus

Nonfunctional

- System properties
- Often unstated and assumed
- Architect's focus

Nonfunctional Requirements

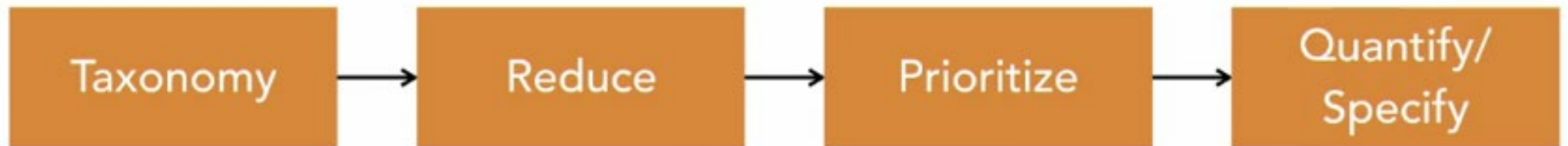
Quality	
External	Internal
<ul style="list-style-type: none">• Usability• Reliability• Performance• Availability• ...	<ul style="list-style-type: none">• Supportability• Scalability• Portability• Efficiency• ...

Constraints
<ul style="list-style-type: none">• Hardware• Software• Data• External interfaces• Backward compatibility• Compliance needs• ...

Identifying Nonfunctional Requirements

Taxonomy sources

- OpenUP template for Supporting Requirements Specification
- *Software Requirements* by Karl Wieggers and Joy Beatty
- Software Quality Attributes: <https://www.clarrus.com/resources/articles/software-quality-attributes/>



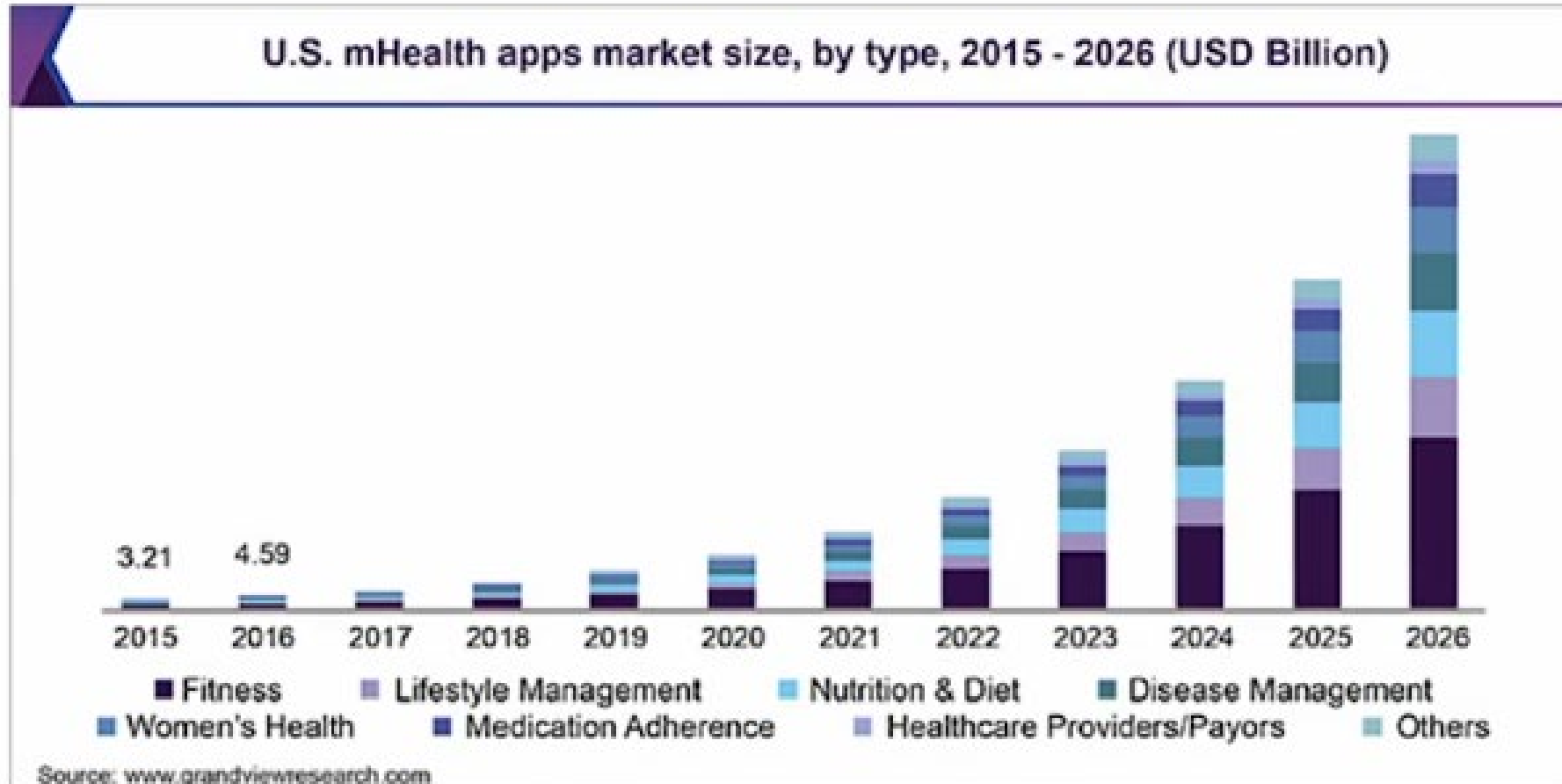
Example

Performance	Response time: less than two seconds to display or refresh a webpage
Availability	99% between 6 a.m. to 9 p.m. on all days
Usability	<ul style="list-style-type: none">• https://developer.android.com/design• Help and tool tips• Autocompletion, correction

Class Work (Challenge 2)

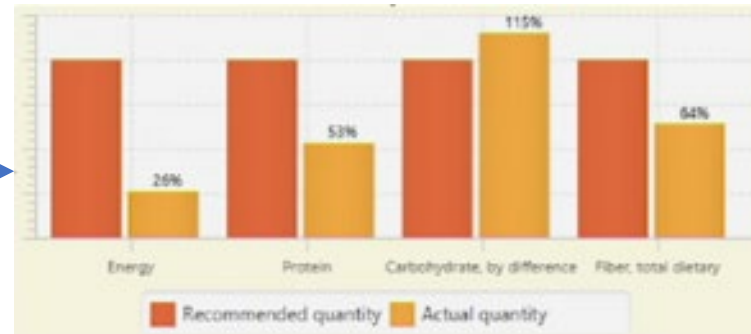
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Class Work (Challenge 1)



Nutrition Tracking

PAU Health Inc. It targets those who prefer to cook at home, but don't have the tools or the information to assess the nutritional quality of what they cook.



PAU Health Inc. wants your team to develop a nutrition tracking app, using which users can track their daily nutrition in terms of calories, protein, fat, and carbohydrates

BSTI Have the Data about all food in Bangladesh