
ChatBot UI

Design and Development



ChatBot – 2 ways for development:

UIKit (classic) II SwiftUI (modern)

ChatBot

Core UI Elements

Regardless of framework, a chatbot interface usually consists of:

- Scrollable message list (conversation history)
- Message bubbles (user vs. bot)
- Input area (text field + send button)
- Optional: typing indicator, avatars, timestamps, attachments

Key UI Components

UITableView or UICollectionView

Displays the list of messages

UICollectionView is preferred for chat apps
(better layout flexibility)

Custom UITableViewCell / UICollectionViewCell

Message bubble views

Left-aligned (bot) vs right-aligned (user)

Often uses:

- UILabel (message text)

- UIView (bubble background)

- UIImageView (avatar, optional)

UITextView or UITextField

Text input for user messages

UITextView is better for multiline input

UIButton

Send button

Attachment buttons (optional)

UIStackView

Layout for input bar and message content

UIView (Input Accessory View)

Commonly used to pin the chat input above
the keyboard

Supporting Elements

- Auto Layout constraints
- Keyboard notifications
(UIKeyboardWillShow/Hide)
- UIScrollView behavior
- UIActivityIndicatorView (typing/loading indicator)

Core UI Elements

Design

Icons

Bubble shape (custom tail)

Avatars

Typography styles Spec

Colors Spec

Code (swift)

Bubble shape (simple)

Text

Input field

Animations

UITableView backbone

UITableView

Purpose: Displays a vertically scrolling list of messages

Why UITableView?

- Cell reuse → great performance
- Built-in scrolling
- Works well with dynamic heights

UITableView

UITableViewCell

UIWebView bubble

rounded corners, tail, bg color, left/right

Inside the bubble

UILabel (Text Messages)

UIImageView (Image Messages)

Timestamp Label UILabel

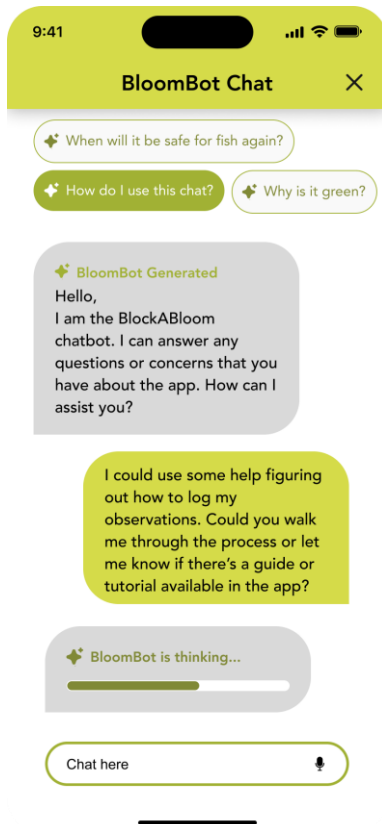
Avatar UIImageView UIImageView

Input Area:

UIView anchored to bottom contains"

UITextField

Send button



UITableView backbone

UIView

Message Bubble View

This is the actual “bubble”.

A UIView (or sometimes UIImageView)

- Rounded corners (cornerRadius)

- Background color:

 - Incoming: light gray

 - Outgoing: blue / green

Anchored left or right depending on sender

UITableView backbone

Message Content

Inside the bubble you usually have one of these:

UILabel (Text Messages)

- `numberOfLines = 0`

- Uses Auto Layout to expand vertically

- Padding via constraints to the bubble view

UIImageView (Image Messages)

- `contentMode = .scaleAspectFill`

- Often clipped with rounded corners

UITableView backbone

Auto Layout (Layout Constraints)

This is where the magic happens.

Typical constraints:

- Bubble max width: ~70–80% of screen

- Bubble pinned:

 - Leading OR trailing (never both)

- Dynamic height via intrinsic content size

Example conceptually:

contentView

- └── bubbleView

 - └── messageLabel

UITableView backbone

Optional Elements

Depending on the app, cells may also include:

Timestamp Label

- Small UILabel

- Below or inside the bubble

Avatar UIImageView

- Circular UIImageView

- Often hidden for consecutive messages

Status Indicators

- “Delivered”

- “Read”

- Spinner for sending state

UITableView backbone

Input Area (Not in the Table View but below it)
Technically not part of the UITableView, but essential:

UIView anchored to bottom contains:

- UITextView
- Send button

UITableView backbone

Core Building Blocks

A UITableView bubble chat is basically:

- UITableView
- Custom UITableViewCell
- UIView bubble
- UILabel / UIImageView inside the bubble
- Auto Layout constraints to position left/right and size dynamically



Core Design Elements

Core Building Blocks

For incoming & outgoing messages (usually separate variants):

Bubble Background

- Bubble shape

 - Rounded rectangle with or without tail

 - Left + right versions

- Color variants

 - Incoming

 - Outgoing

 - Disabled / failed / highlighted (optional)

UITableView

UITableViewCell

UIView bubble

rounded corners, tail, bg color, left/right

Inside the bubble

UILabel (Text Messages)

UIImageView (Image Messages)

Timestamp Label UILabel

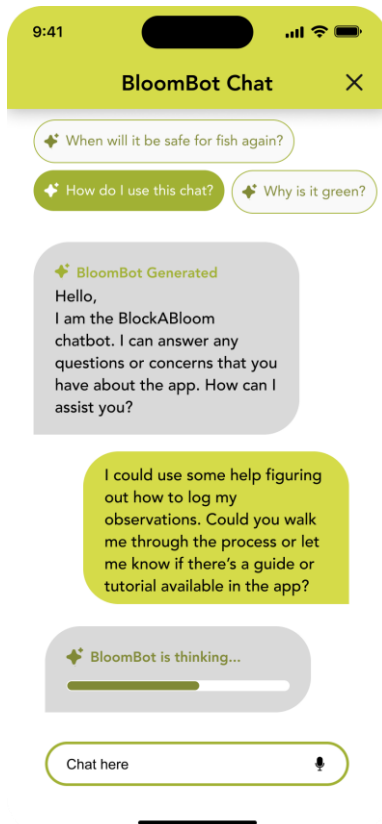
Avatar UIImageView UIImageView

Input Area:

UIView anchored to bottom contains"

UITextField

Send button



Message Status Indicators

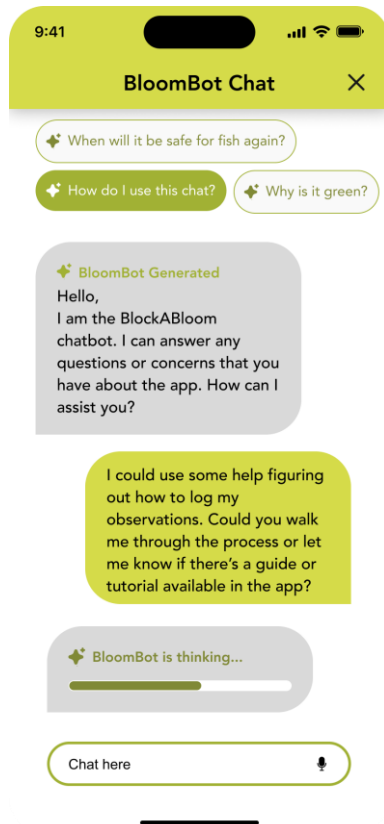
often forgotten:

For outgoing messages:

- Sending (spinner)
- Sent (✓)
- Delivered (✓✓)
- Read (colored ✓✓)
- Failed (⚠️ retry icon)

These are usually:

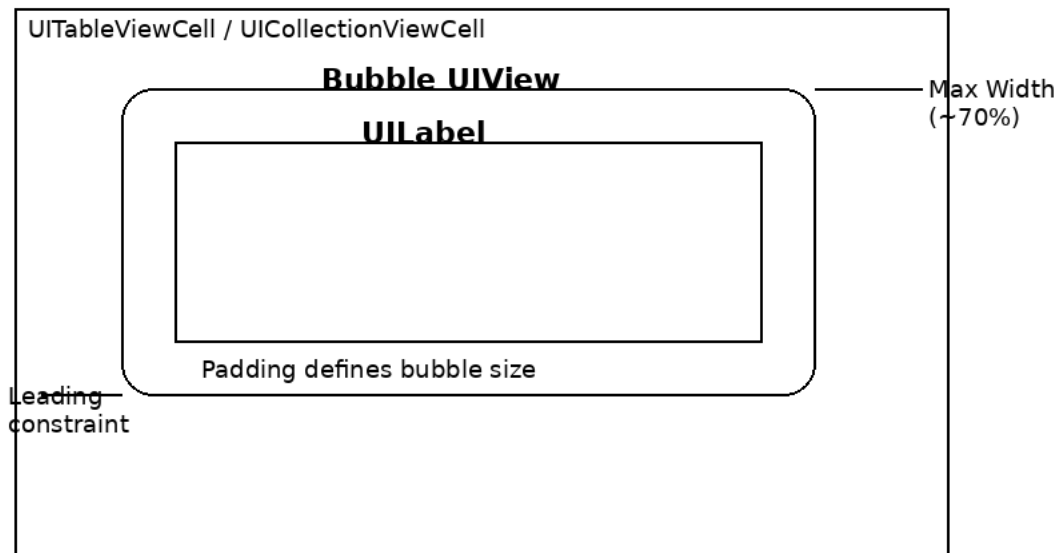
- Small icons
- Or text labels under the bubble



Message Status Indicators

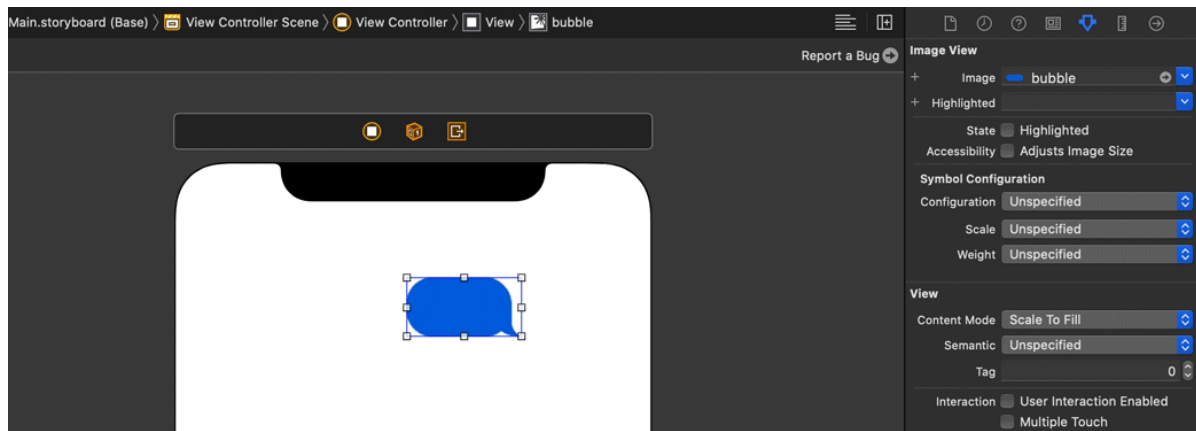
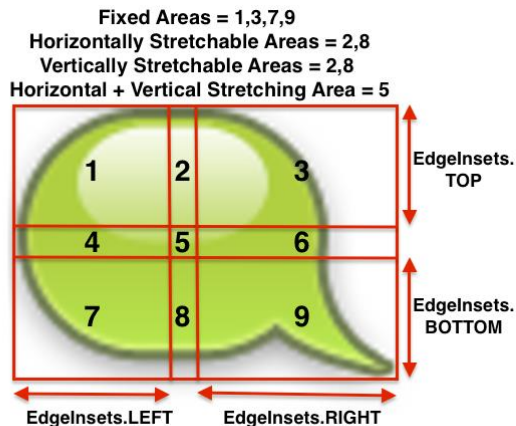
iOS calculates the bubble size automatically based on the text and constraints you give it.

Chat Bubble Design (Auto Layout Concept)



Bubble image

iOS calculates the bubble size automatically based on the text and constraints you give it.



Design Assets

Speech bubble with tail
rounded corners, tail, bg color, left/right
If the bubble is just a rounded rectangle → no design
Inside the bubble:

Typography Do NOT export text as images

- Font family
- Sizes
- Line heights
- Weights
- Colors

UILabel + Dynamic Type

UIView anchored to bottom contains

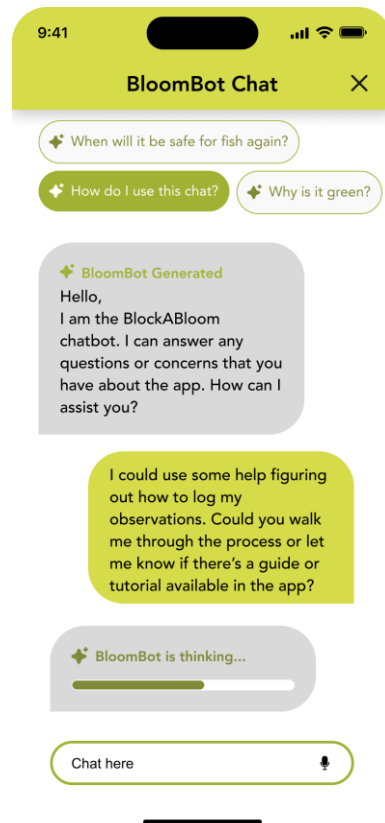
UITextView / UITextField

Send button (hidden when no type action)

- AI icon
- Mic icon

Icons:

- Sending (spinner)
- Sent (✓)
- Delivered (✓✓)
- Read (colored ✓✓)
- Failed (⚠️ retry icon)



How to submit your Xcode project assignment?

Make sure to select the entire Xcode project with all the files (not a single .xcodeproj file).

Before archiving run the project and make sure it compiles and works

Archive the project folder in .zip format

Double check your project works by copying and pasting the zip file to another location on your laptop (Documents / Desktop/ User folder, etc.)

Unzip your project and run it from alternative location.

If all is well, submit to class Drive >A1