

プログラミング概論

第7回 2023年11月1日

App Inventorによる
Androidアプリ開発の実践
(1) 数あてゲーム

今回の授業内容

- 数あてゲームの仕組み
- 二分探索法とは
- 数あてゲームを作る
- 数あてゲームを拡張する
- 数あてゲームのゲーム性を向上

数あてゲームの仕組み

数あてゲームのルール

- コンピュータが用意した数をプレイヤーが当てる
- 当てる数は1～100までの乱数（整数）で、アプリを起動するごとに異なる値になる
- プレイヤーが入力した値と正解を比較し、入力した値の方が小さければ「小さいです」大きければ「大きいです」とヒントが表示される
- 正解するまで何度でもチャレンジできる

数あてゲームの仕組み

正解 ← 乱数 (1~100)

ボタンをクリックしたとき

もし プレイヤーが入力した値 < 正解 なら

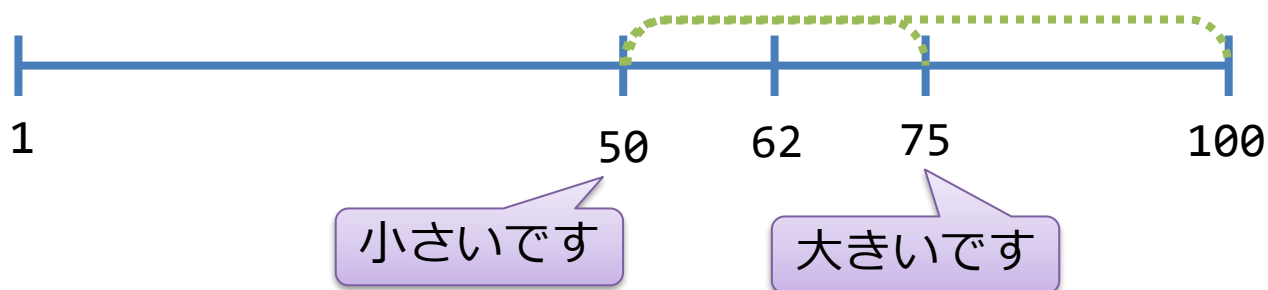
「小さいです」と表示

ではなくもし プレイヤーが入力した値 > 正解 なら

「大きいです」と表示

でなければ

「正解です」と表示



二分探索法とは

二分探索法とは

- 今回のゲームにおいて, (理論上) 何回試せば正解にたどりつくはずでしょうか。



- データがあらかじめ順番に並んでいるときは「調べる範囲を半分に絞りながら探していく方法」が使える。これを「**二分探索法**」という。

どんなときに使う？

- 答案用紙の束（学生番号順になっている）から特定の学生の答案を探し出すとき
- 日付順に積み重なっている書類の山からとある日の会議資料を探し出すとき

データが並んでいない場合

- 順番に並べることを「ソート」という
- ソートされていなければ（順番に並んでいなければ）先頭から順に探していくしかない。これを「**線形探索法**」という。
- 線形探索ではデータ数が100のとき最大の（最悪の）繰り返しの回数は100回, 10000のときは10000回, 100000のときは100000回。
- 二分探索では？

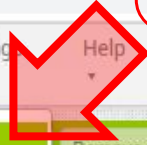
数あてゲームを作る

新しいプロジェクトをつくる

1



2



The screenshot shows the MIT App Inventor web interface. At the top, a blue banner contains the text "新しいプロジェクトをつくる". Below the banner, the browser address bar shows the URL "ai2.appinventor.mit.edu/#5578872021975040". The navigation bar includes "Projects", "Connect", "Build", "Settings", "Help", "My Projects", "View Trash", "Guide", "Report an Issue", "English", and "akiyolab5@gmail.com". The "My projects" menu is open, displaying options such as "Start new project", "Import project (.aia) from my computer...", "Import project (.aia) from a repository...", "Move To Trash", "Save project", "Save project as...", "Checkpoint", "Export selected project (.aia) to my computer", "Export all projects", "Import keystore", "Export keystore", and "Delete keystore". The main workspace shows a mobile device preview with a yellow pencil graphic and the text "おあし". The "Components" panel on the right shows "Screen1" and "Canvas1". The "Properties" panel on the right shows the "Appearance" section for "Screen1 (Form)", including options for "AboutScreen", "AccentColor", "AlignHorizontal", "AlignVertical", "BackgroundColor", "BackgroundImage", "BigDefaultText", "CloseScreenAnimation", and "HighContrast".

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新しいプロジェクトをつくる

The screenshot shows the MIT App Inventor web interface. The browser address bar displays `ai2.appinventor.mit.edu/#5578872021975040`. The navigation menu includes 'Projects', 'Connect', 'Build', 'Settings', 'Help', 'My Projects', 'View Trash', 'Guide', 'Report an Issue', 'English', and 'akiyolab5@gmail.com'. A green toolbar contains buttons for 'New project', 'New Folder', 'Move...', 'Move To Trash', 'View Trash', 'Login to Gallery', and 'Publish to Gallery'. The 'New project' button is highlighted with a red arrow. Below the toolbar is a 'Projects' table with the following data:

<input type="checkbox"/>	Name	Date Created	Date Modified ▼
<input type="checkbox"/>	Omikuji	Oct 25, 2023, 1:08:14 PM	Oct 25, 2023, 1:22:00 PM

At the bottom of the page, there is a link for [Privacy Policy and Terms of Use](#).

プロジェクトに名前をつける

The screenshot shows the MIT App Inventor web interface. At the top, there is a navigation bar with the MIT App Inventor logo and various menu items like 'Projects', 'Connect', 'Build', 'Settings', 'Help', 'My Projects', 'View Trash', 'Guide', 'Report an Issue', 'English', and 'akiyolab5@gmail.com'. Below the navigation bar is a toolbar with buttons for 'New project', 'New Folder', 'Move...', 'Move To Trash', 'View Trash', 'Login to Gallery', and 'Publish to Gallery'. The main content area displays a table of projects with columns for 'Name', 'Date Created', and 'Date Modified'. A dialog box titled 'Create new App Inventor project' is open in the center, with a text input field containing 'Kazuate'. A blue dashed arrow points to the input field, and a red solid arrow points to the 'OK' button. The text '今回は「Kazuate」' is written in blue in the center of the dialog box.

ai2.appinventor.mit.edu/#5578872021975040

MIT APP INVENTOR

Projects Connect Build Settings Help My Projects View Trash Guide Report an Issue English akiyolab5@gmail.com

New project New Folder Move... Move To Trash View Trash Login to Gallery Publish to Gallery

<input type="checkbox"/> Name	Date Created	Date Modified
<input type="checkbox"/> Omikuji	Oct 25, 2023, 1:08:14 PM	Oct 25, 2023, 1:22:00 PM

Create new App Inventor project

Project name: Kazuate

今回は「Kazuate」

Cancel OK

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Palette

Search Components...

User Interface

- Button
- CheckBox
- DatePicker
- Image
- Label
- ListPicker
- ListView
- Notifier
- PasswordTextBox
- Slider
- Spinner
- Switch

Viewer

Display hidden components in Viewer

Phone size (505,320)

Components

- Screen1

Properties

Screen1 (Form)

Appearance

- AboutScreen
- AccentColor: Default
- AlignHorizontal: Left: 1
- AlignVertical: Top: 1
- BackgroundColor: Default
- BackgroundImage: None...
- BigDefaultText
- CloseScreenAnimation: Default
- HighContrast

アプリのタイトルを変える

The screenshot shows the MIT App Inventor web interface. At the top, a blue banner contains the title "アプリのタイトルを変える". Below it, the browser address bar shows the URL "ai2.appinventor.mit.edu/#6506604612419584". The interface includes a navigation menu with options like "Projects", "Connect", "Build", "Settings", "Help", "My Projects", "View Trash", "Guide", and "Report an Issue". On the left, a sidebar lists various components such as "Spinner", "Switch", "TextBox", "TimePicker", and "WebView". The central workspace displays a mobile app preview with a black navigation bar and a white background. To the right of the preview, there are "Rename" and "Delete" buttons. Below these, a "Media" section contains an "Upload File ..." button. On the far right, a settings panel lists various application properties. The "Title" property is highlighted with a red box and contains the text "数あてゲーム". A blue dashed arrow points from the text "「数あてゲーム」" to the "Title" input field. Other visible properties include "CloseScreenAnimation", "HighContrast", "OpenScreenAnimation", "PrimaryColor", "PrimaryColorDark", "ScreenOrientation", "Scrollable", "ShowListsAsJson", "ShowStatusBar", and "TitleVisible".

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Projects Connect Build Settings Help My Projects View Trash Guide Report an Issue English akiyolab5@gmail.com

Spinner Switch TextBox TimePicker WebView

Layout Media Drawing and Animation Maps Charts Data Science Sensors Social Storage Connectivity LEGO® MINDSTORMS® Experimental

Rename Delete

Media Upload File ...

CloseScreenAnimation Default HighContrast OpenScreenAnimation Default PrimaryColor Default PrimaryColorDark Default ScreenOrientation Unspecified Scrollable ShowListsAsJson ShowStatusBar Title 数あてゲーム TitleVisible Application

「数あてゲーム」

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ラベル・テキストボックス・ボタンを配置

The screenshot displays the MIT App Inventor web interface. At the top, a navigation bar includes 'Projects', 'Connect', 'Build', 'Settings', 'Help', 'My Projects', 'View Trash', 'Guide', 'Report an Issue', and language settings. The main workspace is divided into four panels: 'Palette', 'Viewer', 'Components', and 'Properties'.

- Palette:** Lists various UI components. The 'Label' component is highlighted with a red circle and the number '1'. Other components include Button, CheckBox, DatePicker, Image, ListPicker, ListView, Notifier, PasswordTextBox, Slider, Spinner, Switch, TextBox, and TimePicker. Red circles with numbers 2, 3, and 4 are also present, with arrows pointing to the 'Label', 'Button', and 'TextBox' components respectively.
- Viewer:** Shows a mobile phone simulator with the title '数あてゲーム'. It contains three text labels: 'Text for Label1', 'Text for Button1', and 'Text for Label2'. The 'Text for Label2' label is highlighted with a green border.
- Components:** Lists the components on the screen: Screen1, Label1, TextBox1, Button1, and Label2. Label2 is highlighted with a green border.
- Properties:** Shows the configuration for 'Label2 (Label)'. Under the 'Appearance' section, 'HasMargins' is checked, and 'FontSize' is set to 14.0.

At the bottom of the interface, there is a link for 'Privacy Policy and Terms of Use'.

ラベル1のTextにメッセージを入力

The screenshot displays the MIT App Inventor web interface. At the top, a blue banner contains the title "ラベル1のTextにメッセージを入力". Below this, the browser address bar shows the URL "ai2.appinventor.mit.edu/#6506604612419584". The interface is divided into several sections:

- User Interface:** A list of components on the left, with "Label" selected and highlighted in green.
- Phone size (505,320):** A dropdown menu at the top of the design area.
- Design Area:** A central preview of a mobile phone. The screen shows a title "数あてゲーム" and a text input field containing the message "1~100までの数字を入力してください". Below the input field are two buttons labeled "Text for Button1" and "Text for Label2".
- Properties Panel:** On the right, the "Appearance" section is expanded. The "Text" property is highlighted with a red box and contains the same message "1~100までの数字を入力してください". A red arrow points from the "Label1" component in the design area to this "Text" property.

At the bottom of the interface, there is a "Privacy Policy and Terms of Use" link and a footer with the number "18".

ボタンのTextも変更

The screenshot shows the MIT App Inventor web interface. At the top, a blue banner contains the title "ボタンのTextも変更". Below it, the browser address bar shows the URL "ai2.appinventor.mit.edu/#6506604612419584". The interface includes a navigation menu with options like "Projects", "Connect", "Build", "Settings", "Help", "My Projects", "View Trash", "Guide", and "Report an Issue". The main workspace is divided into three sections: a component palette on the left, a mobile device simulator in the center, and a properties panel on the right. The simulator displays a game titled "数あてゲーム" with a text input field and an "OK" button. The properties panel for "Button1" is open, and the "Text" property is highlighted with a red box, showing the value "OK". A red arrow points to the "Button1" component in the workspace. The bottom of the page features a "Privacy Policy and Terms of Use" link.

ラベル2のTextも変更

The screenshot displays the MIT App Inventor web interface. At the top, a blue banner contains the title "ラベル2のTextも変更". Below it, the browser address bar shows the URL "ai2.appinventor.mit.edu/#6506604612419584". The main interface is divided into several sections:

- Left Panel:** A list of components including CheckBox, DatePicker, Image, Label, ListPicker, ListView, Notifier, PasswordTextBox, Slider, Spinner, Switch, TextBox, TimePicker, and WebViewer. The "Label" component is highlighted.
- Center Panel:** A mobile app preview titled "数あてゲーム" (Number Guessing Game). It features a text input field with the prompt "1~100までの数字を入力してください" (Please enter a number between 1 and 100), an "OK" button, and a label with the text "判定結果" (Judgment Result), which is highlighted with a green box.
- Right Panel:** The properties panel for the selected "Label2" component. A red arrow points to the "Label2" component in the design view. The "Text" property is highlighted with a red box and contains the text "判定結果". Other visible properties include FontBold, FontItalic, FontSize (14.0), FontTypeface (default...), HTMLFormat, HasMargins (checked), Height (Automatic...), Width (Automatic...), TextAlignment (left: 0), and TextColor.

「ブロックエディタ」を起動する

The screenshot displays the MIT App Inventor web interface. At the top, a blue banner contains the title 「ブロックエディタ」を起動する. Below the banner is the browser address bar showing the URL ai2.appinventor.mit.edu/#6506604612419584. The main interface is divided into several sections:

- Top Bar:** Includes the MIT App Inventor logo, navigation links (Projects, Connect, Build, Settings, Help, My Projects, View Trash, Guide, Report an Issue), and user information (English, aki@lab5@g... com).
- Designer Bar:** Contains buttons for 'Screen1', 'Add Screen ...', 'Remove Screen', 'Designer', and 'Blocks'. A red arrow points to the 'Designer' button.
- Palettes:**
 - Left Palette:** Search Components... and User Interface components (Button, CheckBox, DatePicker, Image, Label, ListPicker, ListView, Notifier, PasswordTextBox, Slider, Spinner, Switch).
 - Right Palette:** Properties for the selected component, Label2 (Label). The 'Appearance' section is expanded, showing options for BackgroundColor, FontBold, FontItalic, FontSize (14.0), FontTypeface (default...), HTMLFormat, HasMargins (checked), Height (Automatic...), and Width.
- Viewer:** A mobile phone simulator displaying a game screen titled '数あてゲーム'. The screen content includes the text '1~100までの数字を入力してください', an input field, an 'OK' button, and a '判定結果' label.
- Components:** A list of components on the screen: Screen1, Label1, TextBox1, Button1, and Label2.

At the bottom of the interface, there is a link for 'Privacy Policy and Terms of Use'.

正解を入れるための変数ansを作成する

ai2.appinventor.mit.edu/#6506604612419584

MIT APP INVENTOR

Projects Connect Build Settings Help My Projects View Trash Guide Report an Issue English akiyolab5@gmail.com

Kazuate Publish to Gallery Screen1 Add Screen... Remove Screen Designer Blocks

Blocks

- Built-in
 - Control
 - Logic
 - Math
 - Text
 - Lists
 - Dictionaries
 - Colors
 - Variables
 - Procedures
- Screen1
 - Label1
 - TextBox1
 - Button1
 - Label2
- Any component

Viewer

initialize global name to initialize global name to

get

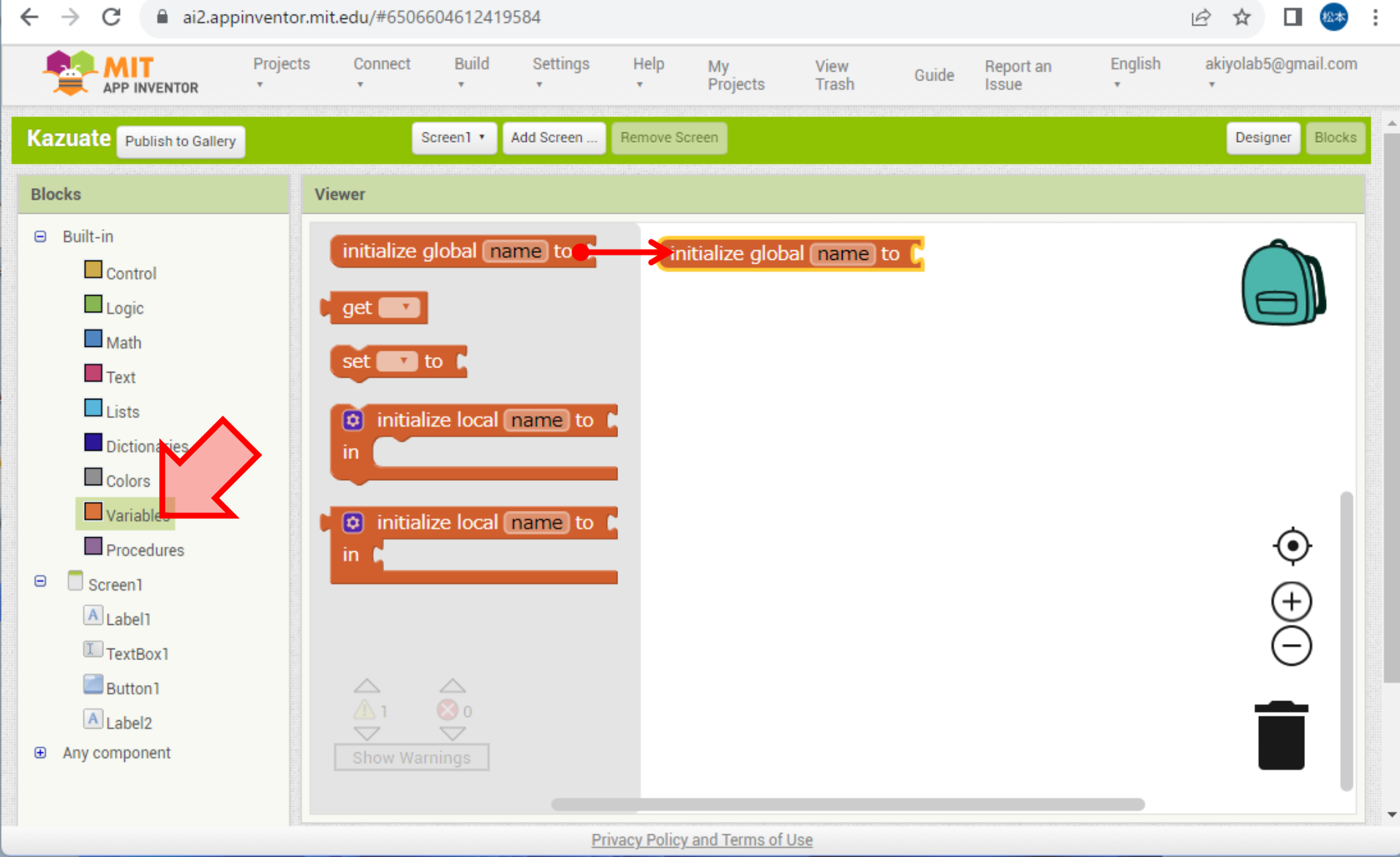
set to

initialize local name to in

initialize local name to in

Show Warnings

Privacy Policy and Terms of Use

The image shows a screenshot of the MIT App Inventor web interface. At the top, a blue banner contains the title '正解を入れるための変数ansを作成する'. Below this is the browser address bar with the URL 'ai2.appinventor.mit.edu/#6506604612419584'. The interface includes a navigation bar with 'MIT APP INVENTOR' and various menu items like 'Projects', 'Connect', 'Build', 'Settings', 'Help', 'My Projects', 'View Trash', 'Guide', 'Report an Issue', 'English', and 'akiyolab5@gmail.com'. The main workspace is divided into 'Blocks' and 'Viewer' sections. The 'Blocks' section on the left shows a tree view with 'Built-in' categories, including 'Variables', which is highlighted with a red arrow. The 'Viewer' section on the right shows a code editor with several blocks: 'initialize global name to', 'get', 'set to', 'initialize local name to in', and another 'initialize local name to in'. A red arrow points from the 'initialize global name to' block in the viewer to the 'initialize global name to' block in the blocks palette. At the bottom, there is a 'Show Warnings' button and a link to 'Privacy Policy and Terms of Use'.

正解を入れるための変数ansを作成する

The screenshot shows the MIT App Inventor web interface. At the top, a blue banner contains the title "正解を入れるための変数ansを作成する". Below the banner is the browser address bar with the URL "ai2.appinventor.mit.edu/#6506604612419584". The MIT App Inventor navigation bar includes "Projects", "Connect", "Build", "Settings", "Help", "My Projects", "View Trash", "Guide", "Report an Issue", "English", and "akiyolab5@gmail.com". The main workspace is divided into "Blocks" and "Viewer". The "Blocks" panel on the left shows a tree view with "Built-in" categories: Control, Logic, Math, Text, Lists, Dictionaries, Colors, Variables (highlighted), and Procedures. Under "Screen1", there are "Label1", "TextBox1", "Button1", and "Label2". The "Viewer" panel on the right shows a code block: "initialize global ans to". A blue dashed arrow points from the text "「ans」と入力" below to the word "ans" in the code block. Other code blocks visible in the viewer include "initialize global name to", "get", "set to", and two "initialize local name to in" blocks. A "Show Warnings" button is at the bottom of the viewer. On the right side of the viewer, there is a backpack icon and a vertical toolbar with a target icon, plus and minus buttons, and a trash can icon. At the bottom of the page, there is a link for "Privacy Policy and Terms of Use".

変数ansに正解の乱数をセットする

ai2.appinventor.mit.edu/#6506604612419584



Projects

Connect

Build

Settings

Help

My Projects

View Trash

Guide

Report an Issue

English

akiyolab5@gmail.com

Kazuate Publish to Gallery

Screen1

Add Screen...

Remove Screen

Designer

Blocks

Blocks

Built-in

- Control
- Logic
- Math
- Text
- Lists
- Dictionaries
- Colors
- Variables
- Procedures

Screen1

- Label1
- TextBox1
- Button1
- Label2

Any component

Viewer

The viewer displays a sequence of code blocks:

- bitwise and
- random integer from 1 to 100
- random fraction
- random set seed to
- min
- arithmetic mean (average)
- mode of a list
- square root
- absolute

An orange block labeled "initialize global ans to" is positioned above the second "random integer from 1 to 100" block. A red arrow points from the "random integer from 1 to 100" block in the list above to the "initialize global ans to" block. Another red arrow points from the "initialize global ans to" block to the "random integer from 1 to 100" block in the list above.

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ボタンがクリックされたら

The screenshot shows the MIT App Inventor web interface. At the top, a blue banner contains the text "ボタンがクリックされたら". Below this is a browser address bar with the URL "ai2.appinventor.mit.edu/#6506604612419584". The interface includes a navigation menu with options like "Projects", "Connect", "Build", "Settings", "Help", "My Projects", "View Trash", "Guide", "Report an Issue", "English", and "akiyolab5@gmail.com". The main workspace is divided into three sections: "Blocks", "Viewer", and "Designer". The "Blocks" section on the left lists various components, with "Button1" highlighted in green and a red arrow pointing to it. The "Viewer" section in the center shows a list of event handlers for "Button1", including ".Click", ".GotFocus", ".LongClick", ".LostFocus", ".TouchDown", and ".TouchUp". A red arrow points from the ".Click" event handler to a specific block in the "do" area: "initialize global ans to random integer from 1 to 100". The "Designer" section on the right shows a simple app layout with a teal backpack icon and a trash can icon.

プレイヤーが入力した値と正解を比較する

ai2.appinventor.mit.edu/#6506604612419584

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Kazuate Publish to Gallery Screen1 Add Screen... Remove Screen Designer Blocks

Blocks

- Built-in
 - Control
 - Logic
 - Math
 - Text
 - Lists
 - Dictionaries
 - Colors
 - Variables
 - Procedures
- Screen1
 - Label1
 - TextBox1
 - Button1
 - Label2
- Any component

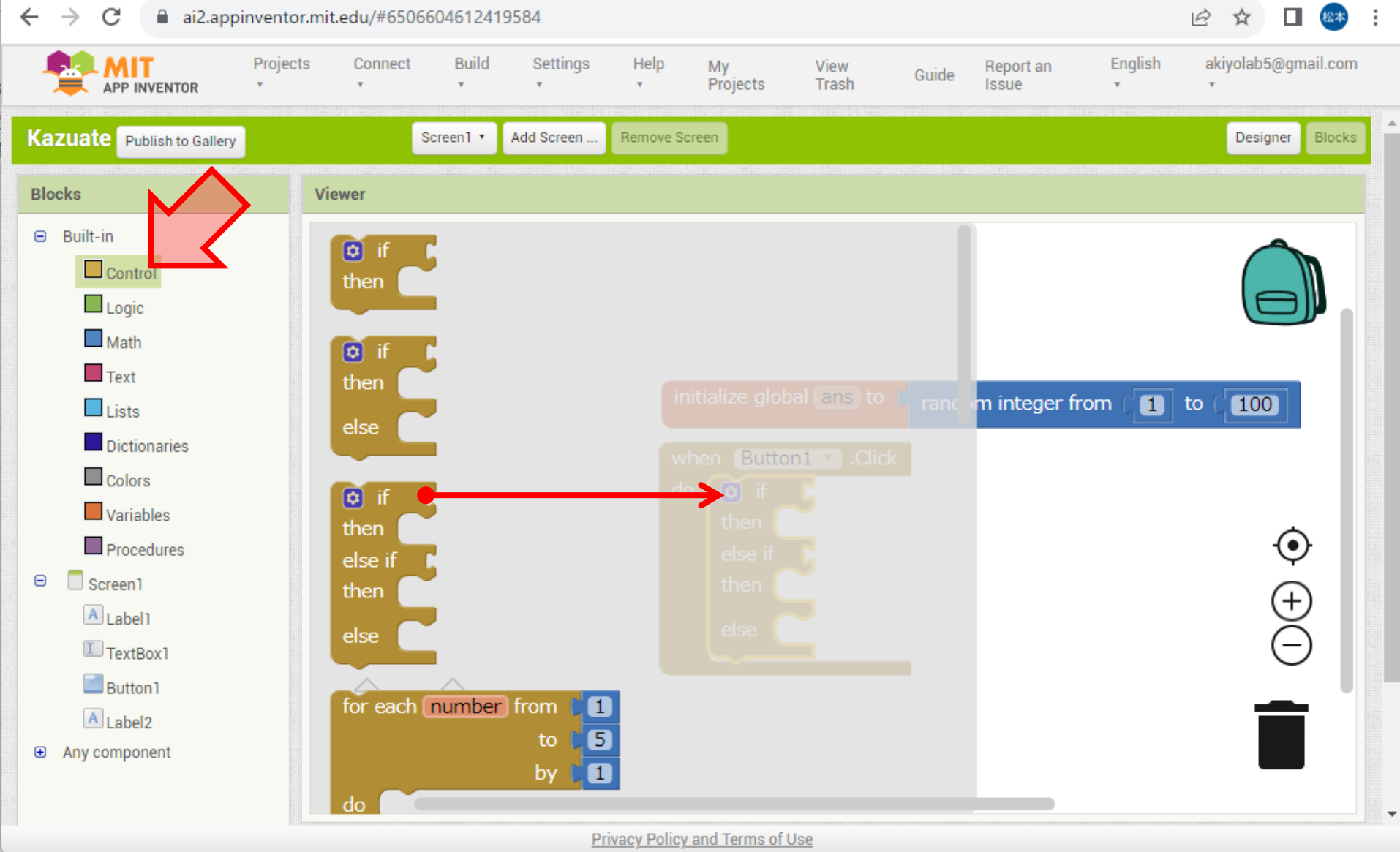
Viewer

initialize global ans to random integer from 1 to 100

when Button1.Click do

- if then else if then else

for each number from 1 to 5 by 1 do



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プレイヤーが入力した値と正解を比較する

ai2.appinventor.mit.edu/#6506604612419584

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Kazuate Publish to Gallery Screen1 Add Screen... Remove Screen Designer Blocks

Blocks

- Built-in
 - Control
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 - Colors
 - Variables
 - Procedures
- Screen1
 - Label1
 - TextBox1
 - Button1
 - Label2
- Any component

Viewer

decimal 0

=

initialize global ans to random integer from 1 to 100

when Button1 .Click do

- if
- then
- else if
- then
- else

bitwise and

プレイヤーが入力した値と正解を比較する

ai2.appinventor.mit.edu/#6506604612419584



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Kazuate Publish to Gallery

Screen1 Add Screen... Remove Screen

Designer Blocks

Blocks

- Built-in
 - Control
 - Logic
 - Math
 - Text
 - Lists
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 - Colors
 - Variables
 - Procedures
- Screen1
 - Label1
 - TextBox1
 - Button1
 - Label2
- Any component

Viewer

The code in the Viewer consists of the following blocks:

- initialize global** `ans` to **random integer from** `1` to `100`
- when** `Button1` **.Click** do
 - if** `=`
 - then**
 - else if**
 - then**
 - else**

A dropdown menu is open for the `=` operator, showing options: `=`, `≠`, `<`, `≤`, `>`, and `≥`. A blue dashed arrow points from the text 「<」に変更 (Change to '<') to the `<` option.

At the bottom left of the Viewer, there are warning icons: a yellow triangle with the number 2 and a red X with the number 0, and a **Show Warnings** button.

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プレイヤーが入力した値と正解を比較する

ai2.appinventor.mit.edu/#6506604612419584

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Projects Connect Build Settings Help My Projects View Trash Guide Report an Issue English akiyolab5@gmail.com

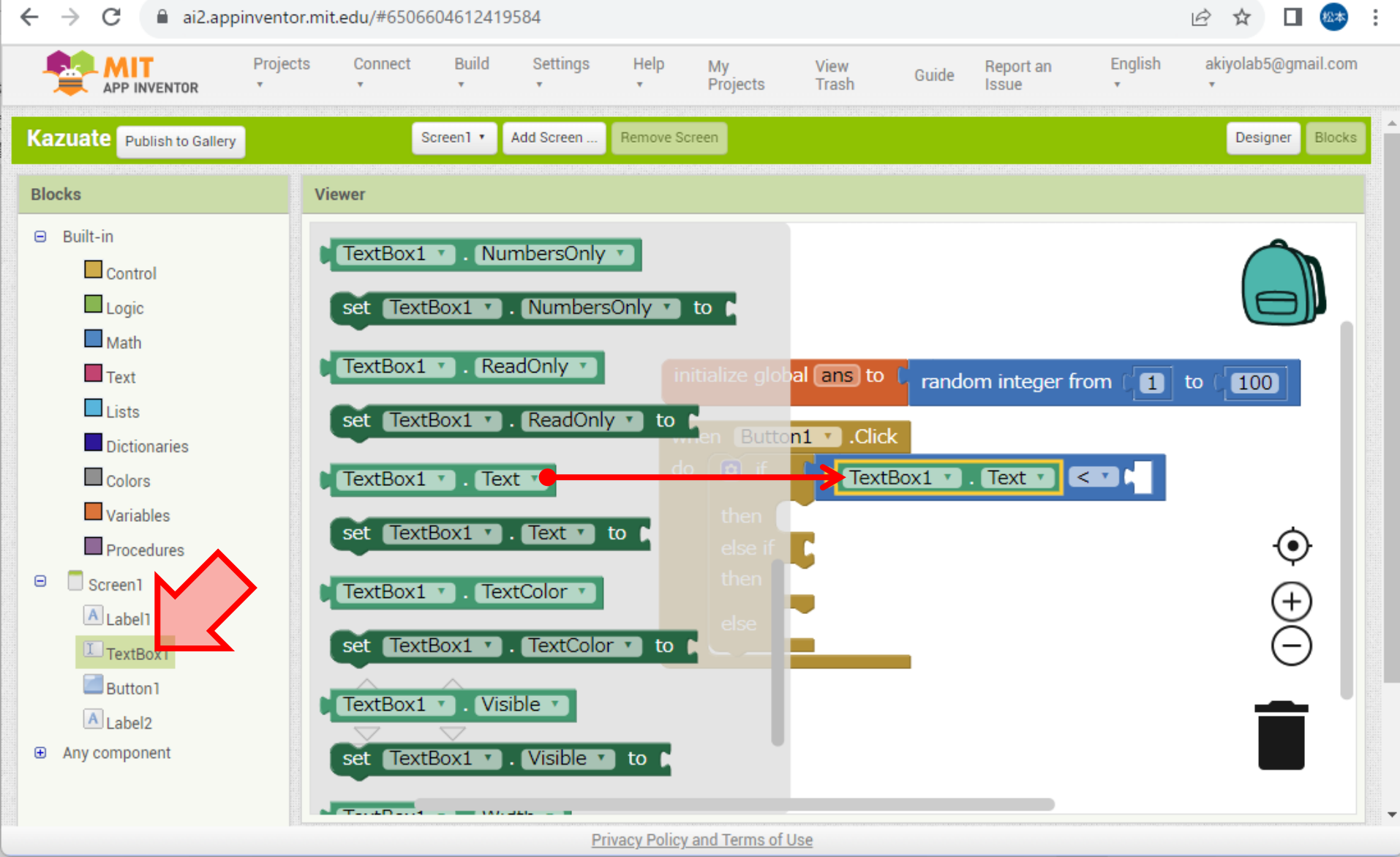
Kazuate Publish to Gallery Screen1 Add Screen... Remove Screen Designer Blocks

Blocks

- Built-in
 - Control
 - Logic
 - Math
 - Text
 - Lists
 - Dictionaries
 - Colors
 - Variables
 - Procedures
- Screen1
 - Label1
 - TextBox1
 - Button1
 - Label2
- Any component

Viewer

```
TextBox1 . NumbersOnly
set TextBox1 . NumbersOnly to
TextBox1 . ReadOnly
set TextBox1 . ReadOnly to
when Button1 . Click
do if
  initialize global ans to random integer from 1 to 100
  TextBox1 . Text <
  set TextBox1 . Text to
  TextBox1 . TextColor
set TextBox1 . TextColor to
TextBox1 . Visible
set TextBox1 . Visible to
```



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プレイヤーが入力した値と正解を比較する

ai2.appinventor.mit.edu/#6506604612419584

MIT APP INVENTOR Projects Connect Build Settings Help My Projects View Trash Guide Report an Issue English akiyolab5@gmail.com

Kazuate Publish to Gallery Screen1 Add Screen... Remove Screen Designer Blocks

Blocks

- Built-in
 - Control
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 - Math
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- Screen1
 - Label1
 - TextBox1
 - Button1
 - Label2
- Any component

Viewer

initialize global name to

get

set to

initialize local name to in

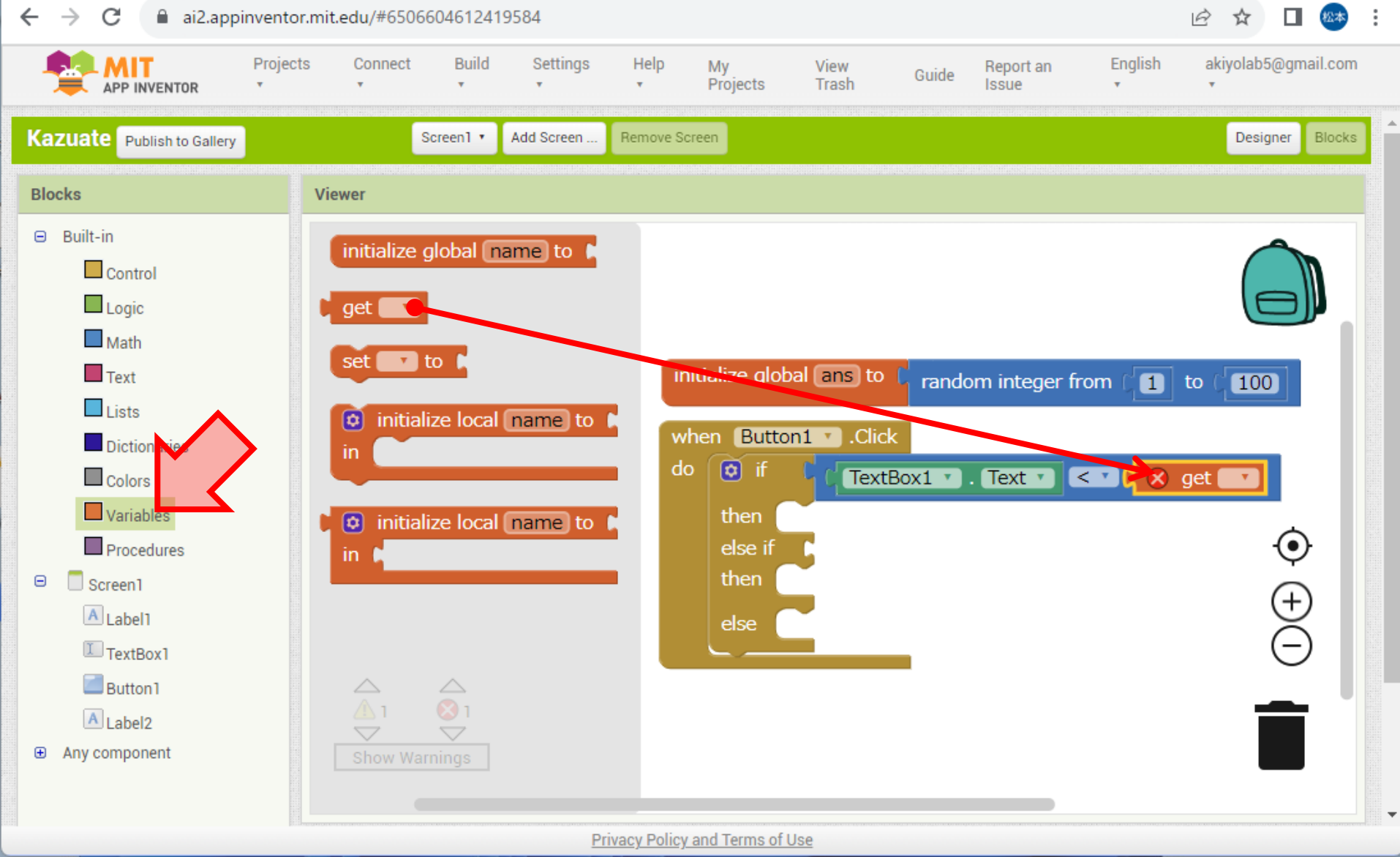
initialize local name to in

when Button1 .Click do

- if
- then
- else if
- then
- else

TextBox1 . Text < get

random integer from 1 to 100



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プレイヤーが入力した値と正解を比較する

ai2.appinventor.mit.edu/#6506604612419584



Projects

Connect

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English

akiyolab5@gmail.com

Kazuate Publish to Gallery

Screen1

Add Screen ...

Remove Screen

Designer

Blocks

Blocks

Built-in

Control

Logic

Math

Text

Lists

Dictionaries

Colors

Variables

Procedures

Screen1

Label1

TextBox1

Button1

Label2

Any component

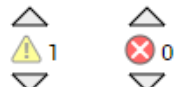
Viewer

initialize global ans to random integer from 1 to 100

when Button1 .Click

do if TextBox1 . Text < get global ans

「ans」
に変更



Show Warnings

Privacy Policy and Terms of Use

比較した結果を表示する

ai2.appinventor.mit.edu/#6506604612419584

MIT APP INVENTOR

Projects Connect Build Settings Help My Projects View Trash Guide Report an Issue English akiyolab5@gmail.com

Kazuate Publish to Gallery Screen1 Add Screen... Remove Screen Designer Blocks

Blocks

- Built-in
 - Control
 - Logic
 - Math
 - Text
 - Lists
 - Dictionaries
 - Colors
 - Variables
 - Procedures
- Screen1
 - Label1
 - TextBox1
 - Button1
 - Label2
- Any component

Viewer

```
set Label2 . HasMargins to  
Label2 . Height  
set Label2 . Height to  
set Label2 . HeightPercent to  
initialize global ans to random integer from 1 to 100  
when Button1 . Click  
do  
  TextBox1 . Text < get global ans  
  set Label2 . Text to  
  Label2 . TextColor  
  set Label2 . TextColor to  
  Label2 . Visible  
  set Label2 . Visible to  
  Label2 . Width
```

プレイヤーが入力した値と正解を比較する

ai2.appinventor.mit.edu/#6506604612419584



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Kazuate Publish to Gallery

Screen1 Add Screen... Remove Screen

Designer Blocks

Blocks

Built-in

- Control
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- Any component

Viewer

```
initialize global ans to random integer from 1 to 100
when Button1 . Click
do
  if TextBox1 . Text < get global ans
  then set Label2 . Text to ""
  else if
  then
  else
```

Privacy Policy and Terms of Use

比較した結果を表示する

The screenshot shows the MIT App Inventor interface. The top navigation bar includes the MIT App Inventor logo, a menu with 'Projects', 'Connect', 'Build', 'Settings', 'Help', 'My Projects', 'View Trash', 'Guide', 'Report an Issue', 'English', and 'akiyolab5@gmail.com'. Below this is a green bar with 'Kazuate', 'Publish to Gallery', 'Screen1', 'Add Screen...', 'Remove Screen', 'Designer', and 'Blocks' buttons.

The left sidebar shows a 'Blocks' palette with categories: Built-in, Control, Logic, Math, Text, Lists, Dictionaries, Colors, Variables, and Procedures. Under 'Text', there are 'Label1', 'TextBox1', 'Button1', and 'Label2'. At the bottom of the sidebar is 'Any component'.

The main 'Viewer' area displays a code block with the following logic:
1. 'initialize global ans to random integer from 1 to 100'
2. 'when Button1.Click do'
3. 'if TextBox1.Text < get global ans'
4. 'then set Label2.Text to "小さいです"'

A blue dashed arrow points from the Japanese text '「小さいです」と入力' (Input '小さいです') to the text '小さいです' in the code block. A teal backpack icon is in the top right of the viewer area. At the bottom of the viewer area, there are warning icons (1 yellow triangle, 0 red X) and a 'Show Warnings' button.

At the bottom of the page, there is a link for 'Privacy Policy and Terms of Use'.

同じようなブロックが必要なので増殖する

ai2.appinventor.mit.edu/#6506604612419584



Projects

Connect

Build

Settings

Help

My Projects

View Trash

Guide

Report an Issue

English

akiyolab5@gmail.com

Kazuate Publish to Gallery

Screen1

Add Screen ...

Remove Screen

Designer

Blocks

Blocks

Viewer

Built-in

Control

Logic

Math

Text

Lists

Dictionaries

Colors

Variables

Procedures

Screen1

Label1

TextBox1

Button1

Label2

Any component

initialize global ans to random integer from 1 to 100

when Button1 .Click

do if TextBox1 .Text < get global ans

then "小さいです"

else

then

else

Duplicate

Add Comment

External Inputs

Collapse Block

Disable Block

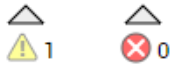
Add to Backpack (0)

Delete 3 Blocks

Download Blocks as PNG

Help

Do It



Show Warnings

Privacy Policy and Terms of Use

スライド 6 枚目を参考に完成させる

The screenshot shows the MIT App Inventor web interface. At the top, a blue banner contains the text "スライド 6 枚目を参考に完成させる". Below this is the browser address bar with the URL "ai2.appinventor.mit.edu/#6506604612419584". The interface includes a navigation bar with "Kazuate", "Publish to Gallery", "Screen1", "Add Screen...", and "Remove Screen" buttons. The left sidebar shows a "Blocks" panel with categories like Control, Logic, Math, Text, Lists, Dictionaries, Colors, Variables, and Procedures. The main "Viewer" area displays a code block with the following logic:

```
initialize global ans to random integer from 1 to 100
when Button1.Click
do
  if TextBox1.Text < get global ans
  then set Label2.Text to "小さいです"
  else if TextBox1.Text > get global ans
  then
  else
```

A blue arrow points to the ">" operator in the "else if" block, with the text "「>」に変更" (Change to '>') written below it. The interface also shows a "Show Warnings" button at the bottom left and a trash icon at the bottom right.

完成したらビルドする

ai2.appinventor.mit.edu/#6506604612419584

MIT APP INVENTOR

Projects Connect Build Settings Help My Projects View Trash Guide Report an Issue English akiyolab5@gmail.com

Kazuate Publish to Gallery Screen Android App (.apk) Android App Bundle (.aab) Designer Blocks

Blocks

- Built-in
 - Control
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 - TextBox1
 - Button1
 - Label2
- Any component

Viewer

```
initialize global ans to random integer from 1 to 100
```

```
when Button1.Click do
```

```
  if TextBox1.Text < get global ans
```

```
  then set Label2.Text to "小さいです"
```

```
  else if TextBox1.Text > get global ans
```

```
  then
```

```
  else
```

Show Warnings

Privacy Policy and Terms of Use

生成されたアプリをPCにダウンロードする

ai2.appinventor.mit.edu/#6506604612419584

MIT APP INVENTOR

Projects Connect Build Settings Help My Projects View Trash Guide Report an Issue English akiyolab5@gmail.com


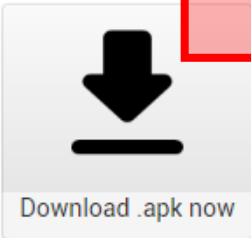
Kazuate Publish to Gallery Screen1 Add Screen... Remove Screen Designer Blocks

Blocks

- Built-in
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Viewer

Android App for Kazuate



Download .apk now

Click the button to download the app, right-click on it to copy a download link, or scan the code with a barcode scanner to install.
Note: this link and barcode are only valid for 2 hours. See [the FAQ](#) for info on how to share your app with others.

Dismiss

Show Warnings

integer from 1 to 100

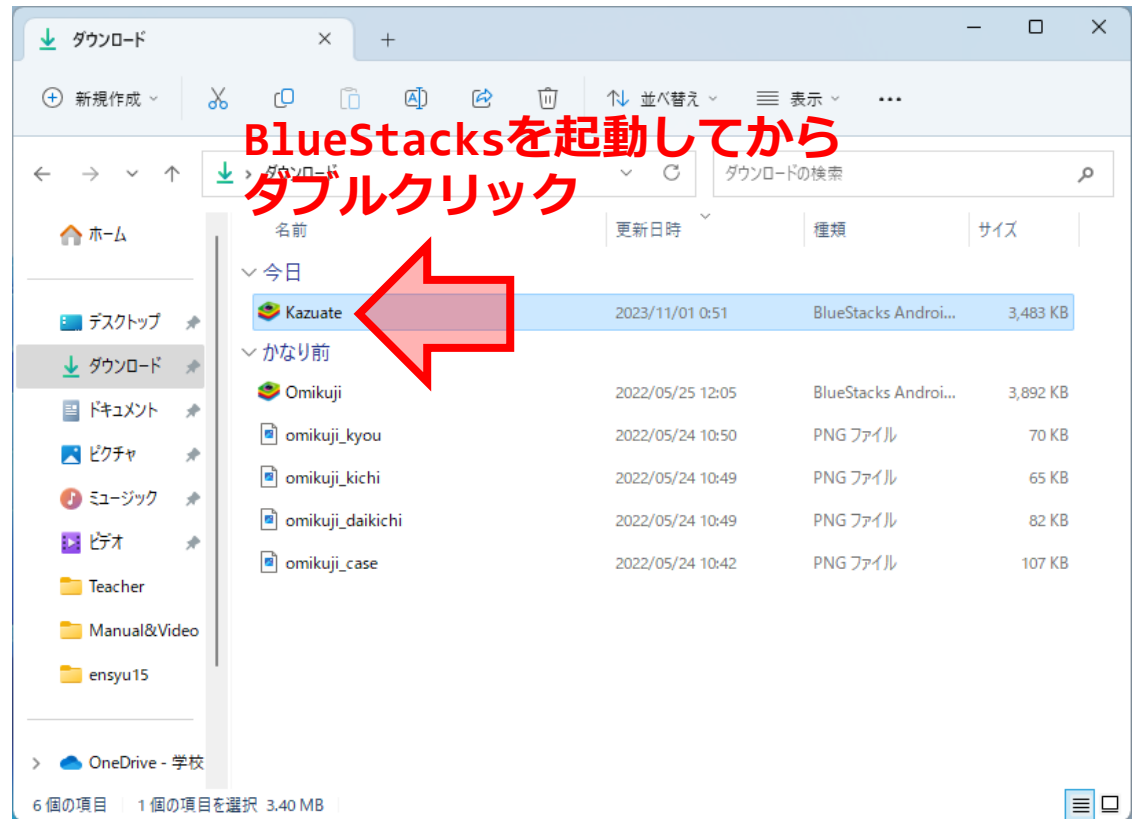
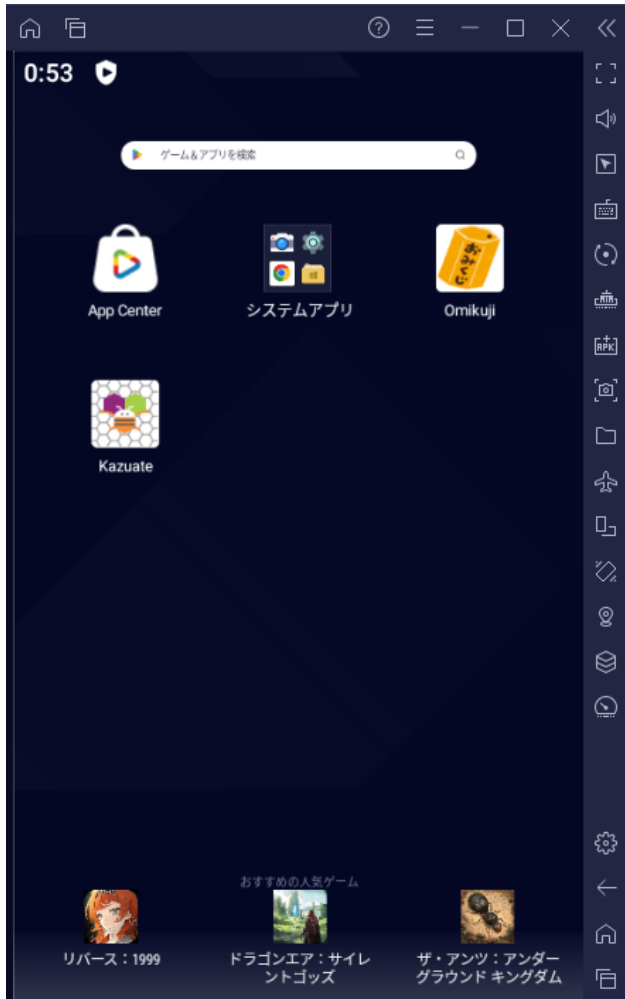
get global ans

小さいです

get global ans

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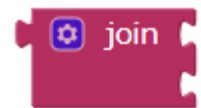
アプリをエミュレータで起動する



数あてゲームを拡張する

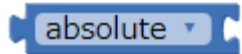
数あてゲームを拡張する

- 当たるまでの入力回数をカウントし、正解したときに「○回で正解」と表示されるようにする
 - 変数countを作る
 - ボタンがクリックされるたびにcountに1を足す
 - ヒント：「1を足す」やり方は3回目の授業を思い出す
 - 正解したときには変数countと"回で正解"を連結してlabel2のTextにセットする
 - ヒント：連結にはjoinというブロックを使う
- 正解したときに画像が表示されるようにする（好きな画像で良い）
 - ヒント：画像の入れ方は前回のおみくじを参考にする



数あてゲームのゲーム性を向上

数あてゲームのゲーム性を向上

- 結局7回で正解にたどり着いてしまい面白くないのでルールを以下のように変更する
 - プレイヤーが入力した値と正解を比較し、
差が16以上なら「とおい」、
差が6～15なら「ちかい」、
差が1～5なら「おいしい」と表示されるようにする
 - ヒント：絶対値を求めるブロックabsoluteを使うと良い（使わなくてもできる） 

振り返りを提出

- 16:20になったら作業を終わりにし（まだ作業中であっても一度中断）、manabaの「小テスト」から「振り返り課題」を提出する。
- 本日の振り返り課題は、実行画面のアップロードがあるため、エミュレータで実行した人はPCから、スマホで実行した人はそのスマホからmanabaにアクセスして提出する。
- 振り返り課題を提出したら終わってよい。ただし作業がまだ残っている場合は次週の授業開始前までに終わらせておく。

数あてゲームはどこまでできましたか。(選択必須)

1.1

1. アプリを実行するところまで1度もいかなかった
2. 基本の数あてゲームまでは完成して実行できた(スライド38枚目)
3. 拡張するところまでできた(当たるまでの回数を表示/画像表示)
4. ゲーム性を向上するところまでできた

上の質問で2~4を選択した人は実行画面をアップロードしてください。

1.2

上の質問で1を選択した人は状況を詳しく説明してください。

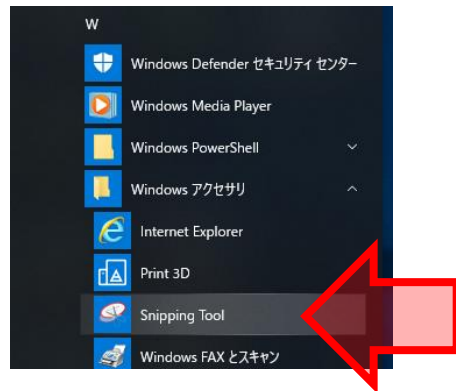
1.3

ここで提出するのはapkファイルではないし、作業中のAppInventorの画面でもない。あくまで「実行画面のスクショ」なので気を付けること。プレイして正解にたどりついた画面でスクショしよう。

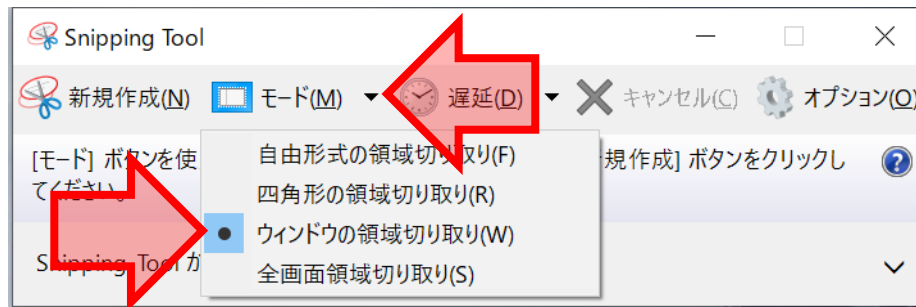
スクリーンショットの撮り方

- PC

① WindowsアクセサリのSnipping Toolを起動



② [モード] → [ウィンドウ領域切り取り]



③ BlueStacksの画面をクリックして保存する

スクリーンショットの撮り方

- Android端末
 - 「電源ボタン」と「音量小ボタン」同時押し
(シャッター音が鳴るまで数秒間押し続ける)
「フォト」の「ライブラリ」の中に保存される
- iPhone/iPad
 - 電源ボタンとホームボタン（ホームボタンが無い場合はサイドボタンとボリューム大ボタン）
同時押し
「写真」の「アルバム」の中に保存される