

# プログラミング概論

第6回 2024年10月30日

App Inventorによる  
Androidアプリ開発方法を学ぶ

# 今回の授業内容

- スマートフォンのアプリ開発とは
- 素材を用意する
- App Inventorでおみくじを作る
- エミュレータで実行する
- おみくじを改良する
- 実機にインストールして実行する
  - Android端末を所持している人のみ
- 実機にインストールせず実行する
  - Android/iOS両方OK (ただしTGwifi非対応)

# スマートフォンのアプリ開発とは

# スマートフォンのアプリ開発の魅力

- 通話, GPS, カメラといった, スマートフォンならではの機能
- 傾き・加速度・明るさ・圧力・温度などの各種センサ
- 優れた携帯性
- 容易な操作性

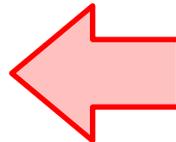
パソコン用ソフトとは一味違ったアプリを開発できる!

これらを活かしたアプリを制作可能

作品を公開し評価される「場」がある

# スマートフォン用アプリの 開発方法

- ウェブアプリ
  - iPhone/Android共通
    - JavaScript
- ネイティブアプリ
  - iPhone
    - Objective-C
    - Swift
  - Android
    - Java
    - Kotlin
    - App Inventor



アップ

インベーター

# App Inventorによる開発の特徴

- ソースコードを一切書かない
- Webブラウザ上で作成（要ネット環境）
  - Chrome○ / Firefox○ / Edge×
- 「デザイナー」で画面を作る  
「ブロックエディタ」で動作を決める  
だけ
- もちろんつくったアプリは実機で動かせる
- 自分のウェブサイトで公開（配布）することも  
GooglePlayで公開することも可能



# Javaのプログラム（ソースコード）の 例：おみくじ

```
package com.example.puzzle;

import android.os.Bundle;
import android.annotation.SuppressLint;
import android.app.Activity;
import android.view.View;
import android.view.Menu;
import android.view.MenuItem;
import android.widget.Button;
import android.widget.TextView;
import java.util.Date;
import java.util.Random;
import java.lang.Integer;
import java.lang.String;
import android.support.v4.app.NavUtils;

public class MainActivity extends Activity {
    Button myButton;
    TextView myTextView;

    public void changeText(View theButton){
        Random rand = new Random();

        String text = "test";
        switch((int)rand.nextInt() % 5){
            case 1:
                text = "大吉";
                break;
            case 2:
                text = "中吉";
                break;
            case 3:
                text = "小吉";
                break;
```

```
            case 4:
                text = "大凶";
                break;
            default :
                text = "凶";
                break;
        }
        myTextView.setText(text);
    }

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        myButton = (Button)findViewById(R.id.button1);
        myTextView = (TextView)findViewById(R.id.textView1);
        // myButton.setOnClickListener(this);
    }

    public void onClick(View view){
        //changeText();
    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        getMenuInflater().inflate(R.menu.activity_main, menu);
        return true;
    }
}
```

# アップ インベンター App Inventorでできること

- 基本
  - 文字や画像の表示
  - 文字の入力やボタン、チェックボックスなどのUIの作成
  - 簡単なデータの保存
- メディア
  - カメラの起動やフォトギャラリーへのアクセス
  - 音声ファイルや動画の再生
- アニメーション
  - 円や画像のアニメーション
- センサー
  - 加速度センサー
  - GPSなどによる位置情報の取得
- ソーシャル
  - 電話帳へのアクセス
  - 電話をかける
  - SMSを送る
  - ウェブへのアクセス
  - Twitterへの連携
- その他
  - 他のAndroidアプリとの連携
  - バーコードスキャナー
  - Bluetoothによる通信
  - 音声認識
  - 音声合成



# アプリづくりの手順

1. 「デザイナー」で**見た目**をつくる
2. 「ブロックエディタ」で**動き**をつくる
3. スマホまたはタブレットにインストールする
4. 動かして確認する

# ここから先は作業です

- 各自、講義資料と動画を見ながら作業を進めてください。  
（動画は講義資料の「素材を用意する」～「エミュレータで実行する」までなので、そこから先は講義資料を見て自分で考えてやること）
- 今回の授業の目的は、アプリ開発の手順をひとつとおり理解しできるようになることです。
- ここでつまずくと次回以降に大きく影響します。
- 作業がうまくいかないときには、まず「よくある質問」を確認してください。
- それでダメなら質問し、**授業時間中に解決**してください。

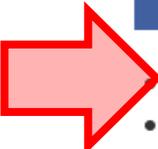
**素材を用意する**

# 画像をダウンロードする

## 配付資料

- [第1回講義資料](#) (09/25)
- [第2回講義資料](#) (10/02), [実習用資料](#), [Mac用資料](#)
- [第3回講義資料](#) (10/09), [第3回講義資料 \(解答を含む完全版\)](#)
- [第4回講義資料](#) (10/16), [第4回講義資料 \(解答を含む完全版\)](#)
- [第5回講義資料](#) (10/23), [第5回講義資料 \(解答を含む完全版\)](#)
- [第6回講義資料](#) (10/30), [動画 1 素材を用意する](#), [動画 2 App Inventor でおみくじを作る](#), [よくある質問 実機にインストールして実行する \(Androidのみ\)](#), [実機にインストールせず実行する \(Android/iOS\)](#)
- [第7回講義資料](#) (11/06)
- [第8回講義資料](#) (11/13)
- [第9回講義資料](#) (11/20)
- [第10回講義資料](#) (11/27)
- [第11回講義資料](#) (12/04)
- [第12回講義資料](#) (12/11)
- [第13回講義資料](#) (12/18)
- [第14回講義資料](#) (01/15)
- [第15回講義資料](#) (01/22)

## フリー素材へのリンク

- 
- [いらすとや](#) (おみくじの検索結果)
  - [音楽研究所](#) (森のくまさん)

## 素材

# 画像をダウンロードする

irasutoya.com/search?q=おみくじ

ホーム ご利用について よくあるご質問 お問い合わせ

かわいいフリー素材集  
**いらすとや**  
スポンサーリンク

← Ads by Google  
この広告の表示を停止  
広告表示設定 ①

イラストを検索  
イラストを検索

あいまい検索 (英語検索)

「おみくじ」の検索結果

おみくじのイラスト「おみくじ入れ」

おみくじのイラスト「大吉」

おみくじのイラスト「小吉」

おみくじのイラスト「大凶」

おみくじのイラスト「大吉」



# 画像をダウンロードする

← → ↻ 🌐 irasutoya.com/2012/04/blog-post\_7236.html ☆ 📄 松本

ホーム ご利用について よくあるご質問 お問い合わせ

かわいいフリー素材集  
**いらすとや**  
🌸 🌸 🌸 🌸

スポンサードリンク

← Ads by Google  
この広告の表示を停止  
広告表示設定 ①

イラストを検索  
イラストを検索 🔍

おみくじのイラスト「おみくじ入れ」

① 画像の上で右クリック

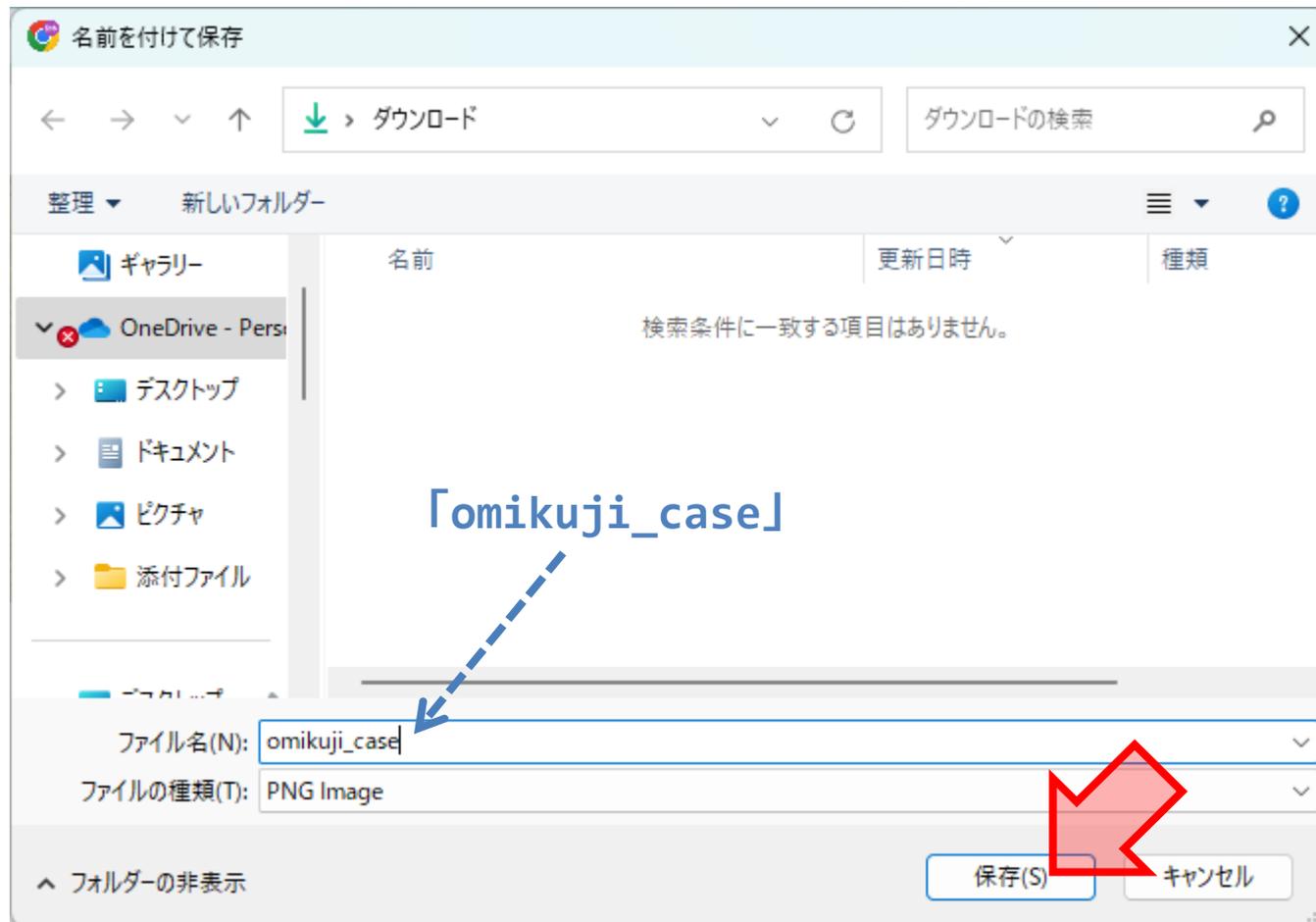


- 新しいタブで開く
- 新しいウィンドウで開く
- シークレットウィンドウで開く
- 📄 単体 (教員) としてリンクを開く
- 📄 この画像の QR コードを作成
- 名前を付けてリンク先を保存...
- リンクのアドレスをコピー
- 新しいタブで画像を開く
- 名前を付けて画像を保存...
- 画像をコピー
- 画像アドレスをコピー
- 🔍 Google レンズで検索

おみくじが入っている、六角形の木の箱のイラストです。正しく振って意外と重くて振るのが大変じゃな

blogger.googleusercontent.com/img/b/R29vZ2xl/.../syougatsu2\_omijikujij2.png 公開日：2012/04/04

# 画像をダウンロードする



# ここからとりあえず3つ選んで

← → 🔄 🌐 irasutoya.com/search?q=おみくじ 🔍 ☆ 📄 ⬇️ 🌐 ⋮

イラストを検索

イラストを検索 🔍

あいまい検索 (英語検索)

Search in English 🔍

あいまいな日本語で (英語でも) 検索できます。上手く動かないのでお試しください。

検索のコツ

検索の仕方については「検索のコツ」をご覧ください。

ONE PIECE  
のイラスト



季節の  
祝日・行事  
のイラスト



イベント  
のイラスト



おみくじのイラスト「小吉」



おみくじのイラスト「大凶」



おみくじのイラスト「大吉」



おみくじのイラスト「末吉」



おみくじのイラスト「吉」



おみくじのイラスト「中吉」



# 同様にダウンロードする

← → ↻ 🌐 irasutoya.com/2012/04/blog-post\_5459.html

☆ 📁 ⬇️ 🌐 松本 ⋮

[ホーム](#) [ご利用について](#) [よくあるご質問](#) [お問合せ](#)

おみくじのイラスト「大吉」



おみくじ（大吉）のイラストです。だるまが描かれています。

公開日：2012/04/06



スポンサーリンク

← Ads by Google

この広告の表示を停止

広告表示設定 ①

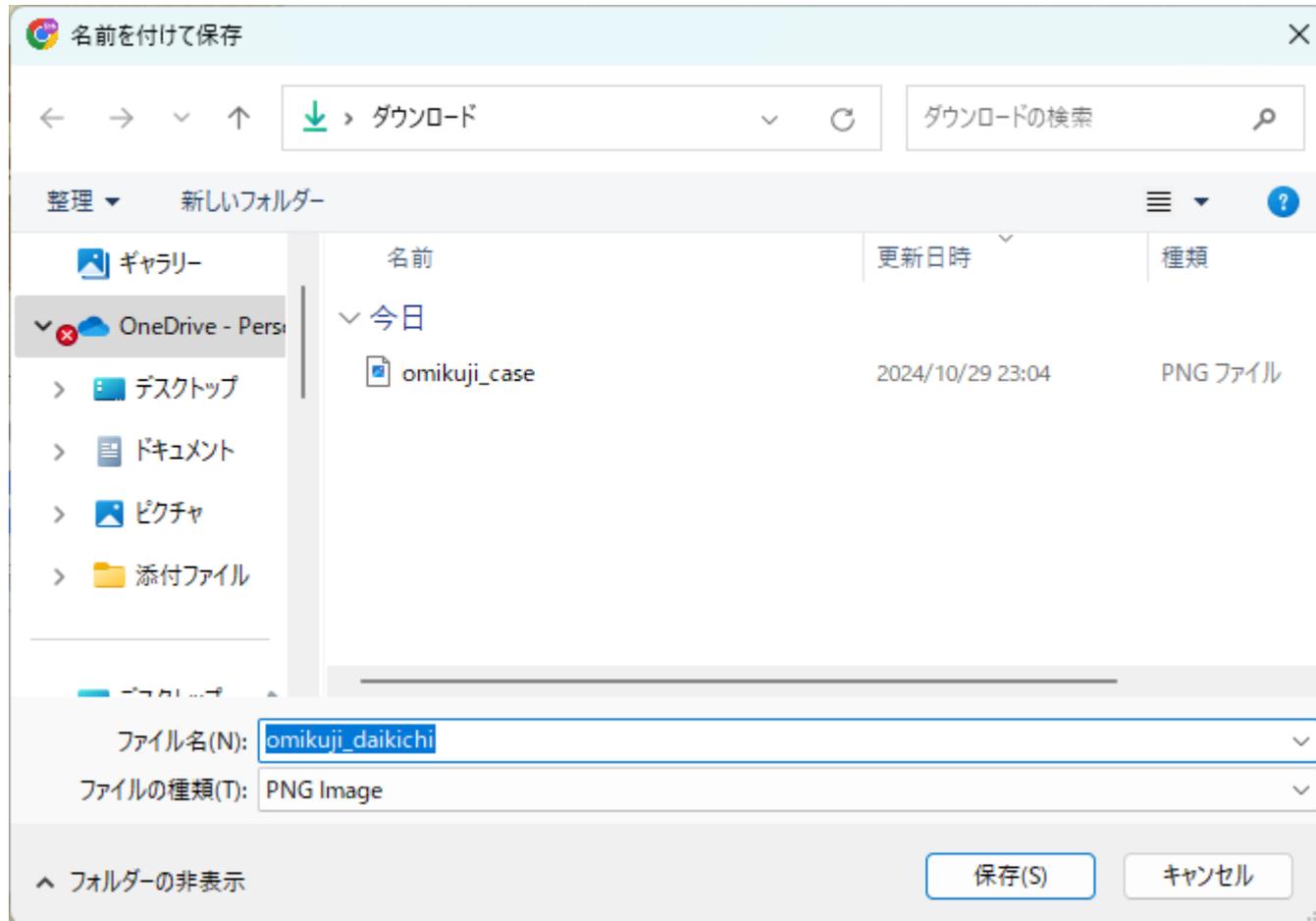
イラストを検索

イラストを検索



あいまい検索（英語検索）

# ファイル名の変更は不要



# APP INVENTORでおみくじを作る

# App Inventorのサイトへ

← → ↻ △ 保護されていない通信 daisy.fwex.tohoku-gakuin.ac.jp/progintro.html

## MATSUMOTO Akiyo Laboratory Tohoku Gakuin University

ホーム

研究紹介

講義

研究室メンバー

業績リスト

備忘録

リンク集

### プログラミング概論

#### 授業に必要なソフトのインストール・設定

- [NotePad++](#)
- [BlueStacks 5](#)
- [Google Chrome](#)
- [Google アカウント](#)

#### プログラミングサイト

- [Blockly Games: 迷路](#)
- [Blockly Games: Pond Tower](#)
- [Blockly Code](#)
- [ピクトプログラミング](#)
- [MIT App Inventor](#)



#### 配付資料

# Chromeを起動して Googleアカウントでログインする



## ログイン

お客様の Google アカウントを使用

メールアドレスまたは電話番号

s24071XXXX@g.tohoku-gakuin.ac.jp|

[メールアドレスを忘れた場合](#)

ご自分のパソコンでない場合は、ゲストモードを使用して非公開でログインしてください。[ゲストモードの使い方](#)の詳細

[アカウントを作成](#)

次へ

日本語

[ヘルプ](#)

[プライバシー](#)

[規約](#)

この画面が出た場合はボタンをクリック

## Terms of Service

### MIT App Inventor Privacy Policy and Terms of Use

*MIT Center for Mobile Learning*

Welcome to MIT's Center for Mobile Learning's App Inventor website (the "Site"). The Site runs on Google's App Engine service. You must read and agree to these Terms of Service and Privacy Policy (collectively, the "Terms") prior to using any portion of this Site. These Terms are an agreement between you and the Massachusetts Institute of Technology. If you do not understand or do not agree to be bound by these Terms, please immediately exit this Site.

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#### Description of MIT App Inventor

From this Site you can access MIT App Inventor, which lets you develop applications for Android devices using a web browser and either a connected phone or emulator. You can also use the Site to store your work and keep track of your projects. App Inventor was originally developed by Google. The Site also includes documentation and educational content, and this is being licensed to you under the Creative Commons Attribution 4.0 International license ([CC BY 4.0](#)).

#### Account Required for Use of MIT App Inventor

In order to log in to MIT App Inventor, you need to use a Google account. Your use of that account is subject to Google's Terms of Service for

I accept the terms of service

MIT App Inventor

ai2.appinventor.mit.edu

Projects Connect Build Settings Help My Projects View Trash Guide Report an Issue English akiyolab6@gmail.com

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

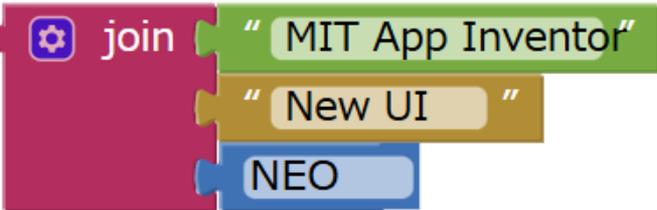
Projects

Name

Modified

### Welcome to App Inventor!

## Welcome to MIT App Inventor



Read about our new User Interface on [Susan's Blog](#)

Got an iPhone or Android phone? Find out how to [set up and connect an iOS or Android device](#).

**右にチェックを入れて  
Continue**

Do Not Show Again

Privacy Policy and Terms of Use Accessibility: [accessibility.mit.edu](#)

MIT App Inventor

ai2.appinventor.mit.edu

Projects Connect Build Settings Help My Projects View Trash Guide Report an Issue English akiyolab6@gmail.com

Projects New project New

Projects

WELCOME TO MIT APP INVENTOR

### GET STARTED WITH SOME TUTORIALS

#### HELLO PURR



HelloPurr is a simple app that you can build in a very short time. You create a button that has a picture of a cat on it, and then program the button so that when it is clicked a "meow" sound plays.

GO TO TUTORIAL

#### TALK TO ME



Text to Speech is surprisingly fun. Find out for yourself with this starter app that talks.

GO TO TUTORIAL

#### TRANSLATE APP



Quickly translate English to Spanish (and other languages too!) You're challenged with creating an app that could act as an aid for immigrant parents who need a little extra help in English-speaking situations. Inspired by YR Media story [What It's Like to be a Translator](#).

GO TO TUTORIAL

START A BLANK PROJECT CLOSE

Privacy Policy and Terms of Use Accessibility: [accessibility.mit.edu](https://accessibility.mit.edu)

# 新しいプロジェクトをつくる

ai2.appinventor.mit.edu



Projects

Connect

Build

Settings

Help

My Projects

View Trash

Guide

Report an Issue

English

akiyolab6@gmail.com

Projects

New project

New Folder

Move...

Move To Trash

View Trash

Login to Gallery

Publish to Gallery

Projects

Name

Date Created

Date Modified ▼

# プロジェクトに名前をつける



Projects

Connect

Build

Settings

Help

My Projects

View Trash

Guide

Report an Issue

English

akiyolab6@gmail.com

Projects

New project

New Folder

Move...

Move To Trash

View Trash

Login to Gallery

Publish to Gallery

Projects

Name

Date Created

Date Modified ▼

## Create new App Inventor project

Project name:

Omikuji

今回は「Omikuji」

Toolkit:

Default

Theme:

Classic

Classic

Cancel

OK

# 1. 「デザイナー」で見た目をつくる

The screenshot displays the MIT App Inventor web interface. At the top, the browser address bar shows the URL `ai2.appinventor.mit.edu/#5275968697597952`. The navigation bar includes the MIT App Inventor logo and various menu items: Projects, Connect, Build, Settings, Help, My Projects, View Trash, Guide, Report an Issue, English, and a user email `akiyolab6@gmail.com`.

The main workspace is divided into four panels:

- Palette:** A search bar and a list of UI components under the "User Interface" category, including Button, CheckBox, CircularProgress, DatePicker, Image, Label, LinearProgress, ListPicker, ListView, Notifier, PasswordTextBox, and Slider.
- Viewer:** A central area showing a mobile phone simulator. It has a checkbox for "Display hidden components in Viewer" (unchecked) and a dropdown for "Phone size (320 x 505)". The simulator screen shows a header labeled "Screen1" and a status bar with signal, battery, and time (9:48) indicators.
- All Components:** A panel showing a single component named "Screen1".
- Properties:** A panel for configuring the selected component. It shows "Screen1 (Screen)" with an "Appearance" section containing various settings: AboutScreen (text input), AlignHorizontal (Left), AlignVertical (Top), BackgroundColor (Default), BackgroundImage (None...), BigDefaultText (checkbox), CloseScreenAnimation (Default), and HighContrast (checkbox).

At the bottom of the interface, there are links for "Privacy Policy and Terms of Use" and "Accessibility: accessibility.mit.edu".



パレット  
使える部品一覧

ビューア  
アプリの画面

コンポーネント  
配置した部品一覧

プロパティ  
部品の詳細設定

メディア  
アプリで使うファイル一覧

# 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 is the browser address bar with the URL "ai2.appinventor.mit.edu/#5275968697597952". The main interface includes a top navigation bar with options like "Projects", "Connect", "Build", "Settings", "Help", "My Projects", "View Trash", "Guide", and "Report an Issue". On the left is a component palette with various widgets such as DatePicker, Image, Label, LinearProgress, ListPicker, ListView, Notifier, PasswordTextBox, Slider, Spinner, Switch, TextBox, TimePicker, and WebViewer. The center displays a mobile device simulator. On the right is a properties panel for the selected component, with sections for "Layout" and "Media". In the "Layout" section, the "Title" property is highlighted with a red box and a blue dashed arrow pointing to it from the text "「おみくじ」". The "Title" field contains the text "おみくじ". Other visible properties include "AlignVertical" (set to Top), "BackgroundColor" (Default), "BackgroundImage" (None), "BigDefaultText" (unchecked), "CloseScreenAnimation" (Default), "HighContrast" (unchecked), "OpenScreenAnimation" (Default), "ScreenOrientation" (Unspecified), and "Scrollable" (unchecked). The "ShowStatusBar" property is checked. At the bottom of the interface, there are links for "Privacy Policy and Terms of Use" and "Accessibility: accessibility.mit.edu".

# Canvasを配置する

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 a user profile. Below this is a project-specific toolbar with buttons for Screen1, Add Screen, Remove Screen, Project Properties, Publish to Gallery, Designer, and Blocs. The main workspace is divided into three panels: a Palette on the left, a central Viewer, and a Properties panel on the right. The Palette is categorized into User Interface, Layout, Media, Drawing and Animation, Maps, Charts, Data Science, Sensors, Social, and Storage. The 'Canvas' component is highlighted in the 'Drawing and Animation' category. A red arrow labeled '① 閉じて' (Close) points to the search bar in the Palette. Another red arrow labeled '② 開く' (Open) points to the Canvas component. The central Viewer shows a mobile phone mockup with the text 'おみくじ' (Omikuji) on the screen. The Properties panel on the right shows settings for 'Screen1 (Screen)', including Appearance, AboutScreen, AlignHorizontal, AlignVertical, BackgroundColor, BackgroundImage, BigDefaultText, CloseScreenAnimation, and HighContrast. At the bottom of the page, there are links for 'Privacy Policy and Terms of Use' and 'Accessibility: accessibility.mit.edu'.

# Canvasを配置する

The screenshot displays the MIT App Inventor web interface. At the top, a blue banner contains the title "Canvasを配置する". Below the banner, the browser address bar shows the URL "ai2.appinventor.mit.edu/#5275968697597952". The interface includes a navigation bar with options like "Projects", "Connect", "Build", "Settings", "Help", "My Projects", "View Trash", "Guide", "Report an Issue", "English", and "akiyolab6@gmail.com".

The main workspace is divided into several panels:

- Palette:** A sidebar on the left containing various component categories such as "User Interface", "Layout", "Media", "Drawing and Animation", "Maps", "Charts", "Data Science", "Sensors", "Social", and "Storage". The "Canvas" component is highlighted in green, and a red arrow points to it.
- Viewer:** A central area showing a mobile phone simulation. The screen displays the text "おみくじ" (Omikuji) and a small Canvas component icon. A checkbox labeled "Display hidden components in Viewer" is visible above the phone.
- All Components:** A panel on the right showing a tree view of the app's components, including "Screen1" and "Canvas1".
- Properties:** A panel on the far right showing the configuration options for the selected "Canvas1" component. The "Appearance" section is expanded, showing properties like "BackgroundColor", "BackgroundImage", "FontSize", "Height", "Width", "LineWidth", "PaintColor", and "TextAlignment".

At the bottom of the interface, there are links for "Privacy Policy and Terms of Use" and "Accessibility: accessibility.mit.edu".

# omikuji\_case.pngをアップロードする

ai2.appinventor.mit.edu/#5275968697597952

MIT APP INVENTOR

Projects Connect Build Settings Help My Projects View Trash Guide Report an Issue English akiyolab6@gmail.com

**Drawing and Animation**

- Ball
- Canvas**
- ImageSprite

**Maps**

**Charts**

**Data Science**

**Sensors**

**Social**

**Storage**

**Connectivity**

**LEGO® MINDSTORMS®**

**Experimental**

**Extension**

おみくじ

Rename Delete

**Media**

Upload File ...

None...

FontSize 14.0

Height Automatic...

Width Automatic...

LineWidth 2.0

PaintColor Default

TextAlignment center : 1

Visible

**Behavior**

ExtendMovesOutsideCanvas

TapThreshold 15

Privacy Policy and Terms of Use Accessibility: accessibility.mit.edu

# omikuji\_case.pngをアップロードする

The screenshot shows the MIT App Inventor web interface. At the top, a blue banner contains the title "omikuji\_case.pngをアップロードする". Below the banner is a browser address bar with the URL "ai2.appinventor.mit.edu/#5275968697597952". The main interface is divided into three sections: a left sidebar with category menus, a central mobile app preview, and a right sidebar with property settings.

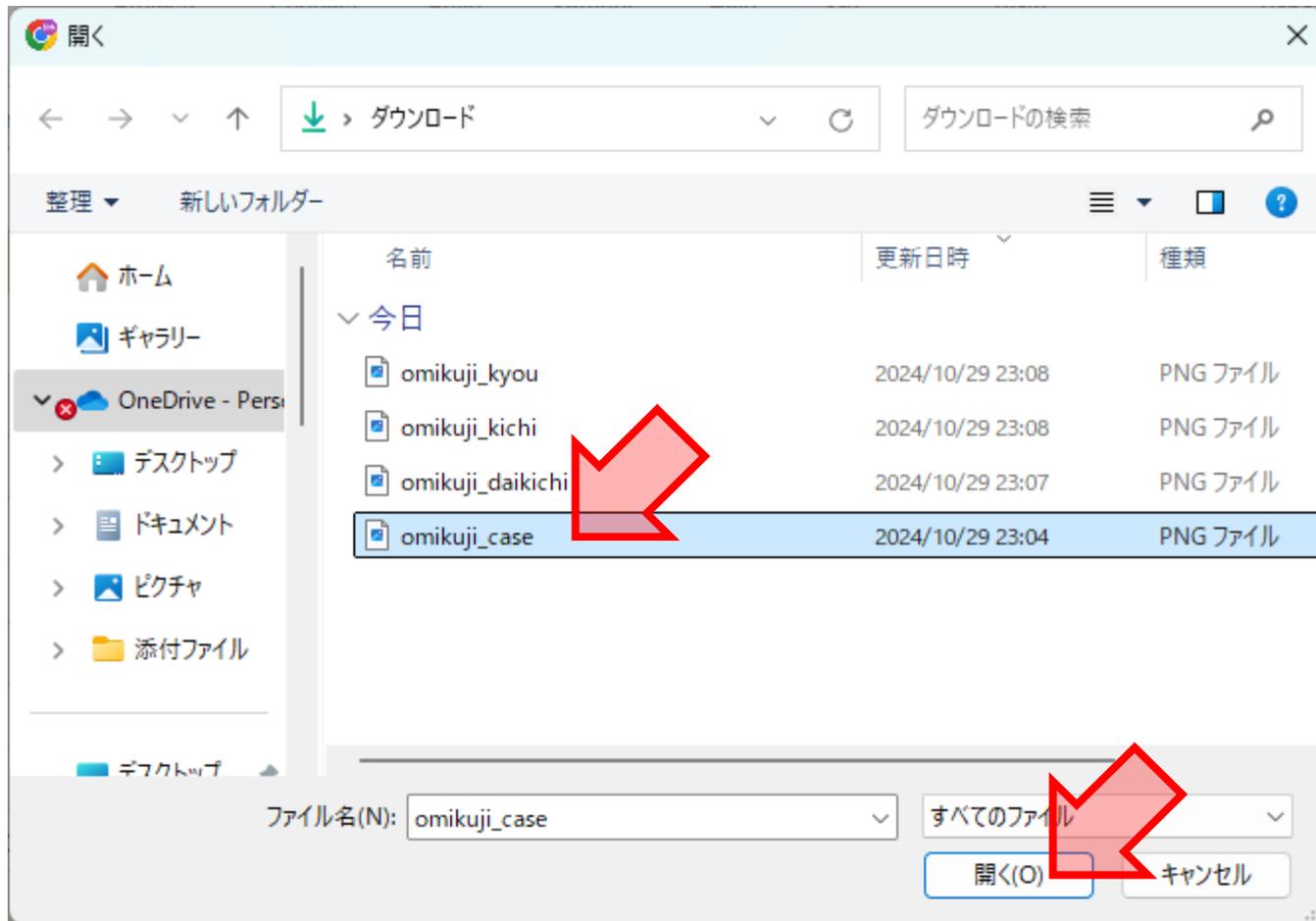
The left sidebar includes categories such as "Drawing and Animation", "Maps", "Charts", "Data Science", "Sensors", "Social", "Storage", "Connectivity", "LEGO® MINDSTORMS®", "Experimental", and "Extension". Under "Drawing and Animation", "Canvas" is selected.

The central preview shows a mobile app titled "おみくじ" (Omikuji) with a small icon on the screen. A red arrow points to a dialog box titled "Upload File ..." that is overlaid on the preview. The dialog box contains the Japanese text "ファイルを選択してあげてください" (Please select a file) and has "Cancel" and "OK" buttons.

The right sidebar shows property settings for the selected "Canvas" component, including "FontSize" (14.0), "Height" (Automatic...), "Width" (Automatic...), "LineWidth" (2.0), "PaintColor" (Default), "TextAlignment" (center : 1), "Visible" (checked), and "Behavior" (ExtendMovesOutsideCanvas unchecked, TapThreshold 15).

At the bottom of the interface, there are links for "Privacy Policy and Terms of Use" and "Accessibility: accessibility.mit.edu".

# omikuji\_case.pngをアップロードする



# omikuji\_case.pngをアップロードする

ai2.appinventor.mit.edu/#5275968697597952

MIT APP INVENTOR

Projects Connect Build Settings Help My Projects View Trash Guide Report an Issue English akiyolab6@gmail.com

Drawing and Animation

- Ball
- Canvas
- ImageSprite

Maps

Charts

Data Science

Sensors

Social

Storage

Connectivity

LEGO® MINDSTORMS®

Experimental

Extension

おみくじ

Upload File ...

ファイルを選択 omikuji\_case.png

Cancel OK

Media

Upload File ...

Behavior

- ExtendMovesOutsideCanvas
- TapThreshold

Privacy Policy and Terms of Use Accessibility: accessibility.mit.edu

The image shows a screenshot of the MIT App Inventor web interface. At the top, a blue banner contains the title 'omikuji\_case.pngをアップロードする'. Below this is the browser address bar showing the URL 'ai2.appinventor.mit.edu/#5275968697597952'. The main interface is divided into several sections. On the left is a 'Drawing and Animation' panel with categories like 'Ball', 'Canvas', and 'ImageSprite'. The center shows a mobile app preview titled 'おみくじ' with a small icon on the screen. A dialog box titled 'Upload File ...' is overlaid on the preview, showing a text input field with 'ファイルを選択' and 'omikuji\_case.png', and 'Cancel' and 'OK' buttons. A red arrow points to the 'OK' button. On the right is a properties panel for the selected object, with sections for 'Media' (containing an 'Upload File ...' button) and 'Behavior' (containing 'ExtendMovesOutsideCanvas' and 'TapThreshold'). The bottom of the page has a footer with 'Privacy Policy and Terms of Use' and 'Accessibility: accessibility.mit.edu'.

# omikuji\_case.pngをアップロードする

ai2.appinventor.mit.edu/#5275968697597952

MIT APP INVENTOR

Projects Connect Build Settings Help My Projects View Trash Guide Report an Issue English akiyolab6@gmail.com

**Drawing and Animation**

- Ball
- Canvas**
- ImageSprite

Maps

Charts

Data Science

Sensors

Social

Storage

Connectivity

LEGO® MINDSTORMS®

Experimental

Extension

おみくじ

Rename Delete

**Media**

- omikuji\_case.png**

Upload File ...

None...

FontSize 14.0

Height Automatic...

Width Automatic...

LineWidth 2.0

PaintColor Default

TextAlignment center : 1

Visible

**Behavior**

- ExtendMovesOutsideCanvas
- TapThreshold 15

Privacy Policy and Terms of Use Accessibility: accessibility.mit.edu

# Canvas1のBackgruondImageに omikuji\_case.pngを設定する

The screenshot displays the MIT App Inventor web interface for a project named "Omikuji". The top navigation bar includes "Screen1", "Add Screen...", "Remove Screen", "Project Properties", and "Publish to Gallery". The left sidebar contains a "Palette" with categories like "User Interface", "Layout", "Media", "Drawing and Animation", "Maps", "Charts", "Data Science", "Sensors", "Social", and "Storage". The "Canvas" component is highlighted in the palette. The central "Viewer" shows a mobile phone mockup with the text "おみくじ" and a small Canvas component icon. The right sidebar shows the "Properties" panel for "Canvas1 (Canvas)", with the "Appearance" section expanded. The "BackgroundImage" property is set to "omikuji\_case.png", and a red arrow points to the "Upload File..." button. Another red arrow points to the "OK" button in the upload dialog. The bottom of the page contains links for "Privacy Policy and Terms of Use" and "Accessibility: accessibility.mit.edu".

# Canvas1のBackgruondImageに omikuji\_case.pngを設定する

The screenshot displays the MIT App Inventor web interface for a project named "Omikuji". The top navigation bar includes "Projects", "Connect", "Build", "Settings", "Help", "My Projects", "View Trash", "Guide", "Report an Issue", "English", and "akiyolab6@gmail.com". The main workspace is divided into four panels: "Palette", "Viewer", "All Components", and "Properties".

- Palette:** Shows a search bar and categories like "User Interface", "Layout", "Media", "Drawing and Animation", "Maps", "Charts", "Data Science", "Sensors", "Social", and "Storage". The "Canvas" component is highlighted.
- Viewer:** Displays a mobile phone simulation with the text "おみくじ" and an illustration of an orange omikuji case. A dropdown menu shows "Phone size (320 x 505)".
- All Components:** Shows a tree view with "Screen1" containing "Canvas1".
- Properties:** Lists properties for "Canvas1 (Canvas)". The "Appearance" section is expanded, and the "BackgroundImage" property is highlighted with a red box, showing the value "omikuji\_case.png...". Other visible properties include "BackgroundColor", "FontSize" (14.0), "Height" (Automatic...), "Width" (Automatic...), "LineWidth" (2.0), "PaintColor" (Default), and "TextAlignment" (center : 1).

At the bottom of the interface, there are links for "Privacy Policy and Terms of Use" and "Accessibility: [accessibility.mit.edu](http://accessibility.mit.edu)".

# 画像の縦横幅を画面サイズに合わせる

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', 'English', and 'akiyolab6@gmail.com'. Below this is a green header for the project 'Omikuji', with buttons for 'Screen1', 'Add Screen ...', 'Remove Screen', 'Project Properties', 'Publish to Gallery', 'Designer', and 'Blocks'. The main workspace is divided into four panels: 'Palette' (left), 'Viewer' (center), 'All Components' (right), and 'Properties' (far right). The 'Viewer' panel shows a mobile phone screen with a yellow envelope graphic and the text 'おみくじ'. The 'Properties' panel for 'Canvas1' is highlighted with a red box, and the 'Height' and 'Width' fields are set to 'Fill parent...'. A blue arrow labeled 'Fill' points to these fields. The 'All Components' panel shows a tree view with 'Screen1' and 'Canvas1'. The 'Palette' panel has a search bar and categories like 'User Interface', 'Layout', 'Media', 'Drawing and Animation', 'Maps', 'Charts', 'Data Science', 'Sensors', 'Social', and 'Storage'. The 'Drawing and Animation' category is expanded, showing 'Ball', 'Canvas', and 'ImageSprite'.

# Icon(Iconikuji\_case.png)を設定する

The screenshot shows the MIT App Inventor interface. At the top, the URL is `ai2.appinventor.mit.edu/#5275968697597952`. The navigation bar includes 'Projects', 'Connect', 'Build', 'Settings', 'Help', 'My Projects', 'View Trash', 'Guide', 'Report an Issue', 'English', and 'akiyolab6@gmail.com'. The 'Project Properties' dialog box is open, with the 'Project Properties' tab selected. The dialog has a left sidebar with 'General', 'Theming', and 'Publishing' sections. The main content area shows the 'Icon' section, which includes a dropdown menu currently set to 'None...'. A red arrow labeled '1' points to the 'Project Properties' tab, and another red arrow labeled '2' points to the 'Icon' dropdown menu. A 'CLOSE' button is at the bottom of the dialog.

# Icon(omikuji\_case.png)を設定する

The screenshot shows the MIT App Inventor interface with the Project Properties dialog open. The dialog has a left sidebar with tabs for General, Theming, and Publishing. The main content area is titled "Project Properties" and contains the following text:

You can always change your toolkit in Project Properties, so your choice now won't limit the future possibilities for your app.

Default ▾

**DefaultFileScope**

Specifies the default scope used when components access files. Note that the [File](#) component has its own property for controlling file scopes.

App ▾

**Icon**

The image used for your App's display icon should be a square png or jpeg image with dimensions up to 1024x1024 pixels. Larger images may cause compiling or installing the app to fail. The build server will generate images of standard dimensions for Android devices.

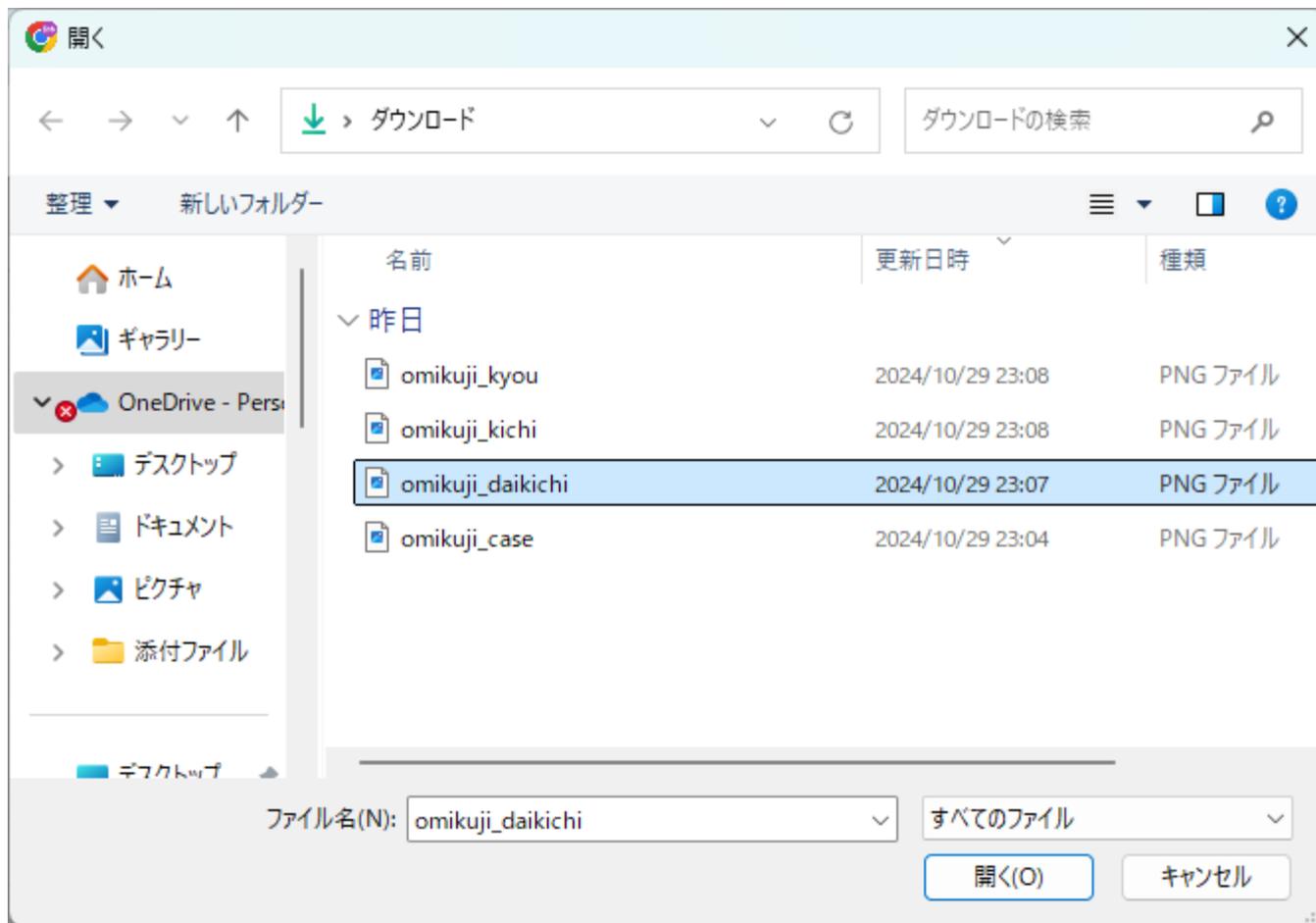
omikuji\_case.png...

CLOSE

# 続いて他の画像も同様にアップロードする

The screenshot shows the MIT App Inventor web interface. At the top, the URL is `ai2.appinventor.mit.edu/#5275968697597952`. The interface includes a top navigation bar with options like 'Projects', 'Connect', 'Build', 'Settings', 'Help', 'My Projects', 'View Trash', 'Guide', and 'Report an Issue'. On the left, there is a sidebar with categories such as 'Drawing and Animation', 'Maps', 'Charts', 'Data Science', 'Sensors', 'Social', 'Storage', 'Connectivity', 'LEGO® MINDSTORMS®', 'Experimental', and 'Extension'. The central area displays a mobile app preview with a yellow character 'おみくじ' (Omikuji) on a screen. A dialog box titled 'Upload File ...' is overlaid on the preview, containing the text 'ファイルを選択 選択されていません' (Select a file. None selected) and buttons for 'Cancel' and 'OK'. A red arrow points to the 'OK' button. On the right, there is a properties panel for the selected object, showing attributes like 'FontSize', 'Height', 'Width', 'LineWidth', 'PaintColor', 'TextAlignment', 'Visible', and 'Behavior'. The 'Media' section shows the file 'omikuji\_case.png' with an 'Upload File ...' button. At the bottom, there are links for 'Privacy Policy and Terms of Use' and 'Accessibility: accessibility.mit.edu'.

# 続いて他の画像も同様にアップロードする



# 続いて他の画像も同様にアップロードする

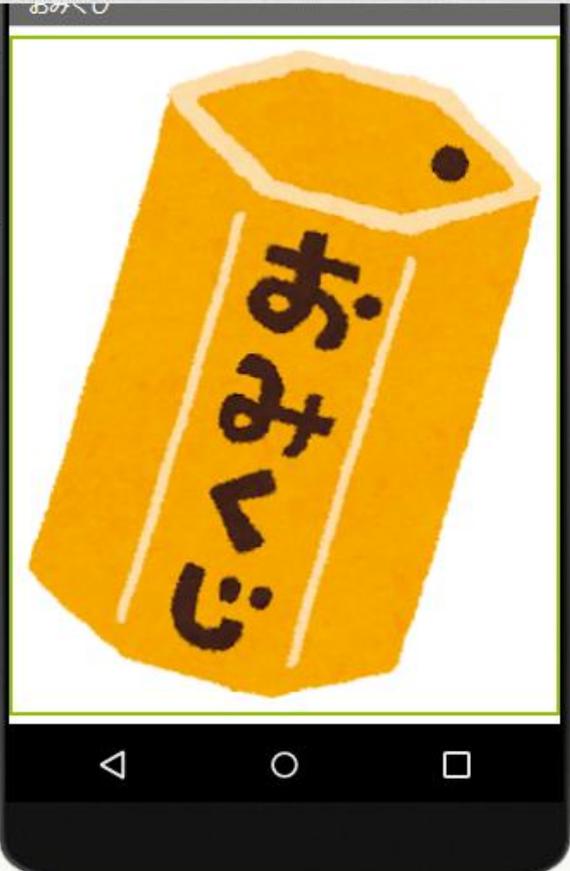
ai2.appinventor.mit.edu/#5275968697597952

MIT APP INVENTOR

Projects Connect Build Settings Help My Projects View Trash Guide Report an Issue English akiyolab6@gmail.com

Ball Canvas ImageSprite

Maps Charts Data Science Sensors Social Storage Connectivity LEGO® MINDSTORMS® Experimental Extension



FontSize 14.0

Height Fill parent...

Width Fill parent...

LineWidth 2.0

PaintColor Default

TextAlignment center : 1

Visible

Behavior

ExtendMovesOutsideCanvas

TapThreshold 15

Rename Delete

Media

- omikuji\_case.png
- omikuji\_daikichi.png
- omikuji\_kichi.png
- omikuji\_kyou.png

Upload File ...

Privacy Policy and Terms of Use Accessibility: [accessibility.mit.edu](https://accessibility.mit.edu)

# 「ブロックエディタ」を起動する

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: Projects, Connect, Build, Settings, Help, My Projects, View Trash, Guide, Report an Issue, English, and a user profile for akiyolab6@gmail.com. Below this is a green header bar for the current project, 'Omikuji', with buttons for 'Screen1', 'Add Screen ...', 'Remove Screen', 'Project Properties', and 'Publish to Gallery'. The 'Blocks' tab is highlighted with a red arrow. The main workspace is divided into four panels: 'Palette' (containing categories like User Interface, Layout, Media, Drawing and Animation, Maps, Charts, Data Science, Sensors, Social, and Storage), 'Viewer' (showing a mobile phone mockup with a yellow 'Omikuji' case), 'All Components' (showing a tree view with 'Screen1' and 'Canvas1'), and 'Properties' (showing settings for 'Canvas1 (Canvas)', including Appearance, BackgroundColor, BackgroundImage, FontSize, Height, Width, LineWidth, PaintColor, and TextAlignment).

[Privacy Policy and Terms of Use](#)

Accessibility: [accessibility.mit.edu](#)

# 2. ブロックエディタで動きをつくる

The screenshot displays the MIT App Inventor web interface for a project named "Omikujii". The browser address bar shows the URL "ai2.appinventor.mit.edu/#5275968697597952". The top navigation bar includes links for "Projects", "Connect", "Build", "Settings", "Help", "My Projects", "View Trash", "Guide", "Report an Issue", "English", and the user email "akiyolab6@gmail.com".

The main interface is divided into two primary sections: "Blocks" on the left and "Viewer" on the right. The "Blocks" panel lists various categories of components: "Built-in" (Control, Logic, Math, Text, Lists, Dictionaries, Colors, Variables, Procedures) and "Screen1" (Canvas1). A "Show Warnings" button is located at the bottom of the "Blocks" panel, with two warning icons (a yellow triangle and a red X) each followed by the number "0".

The "Viewer" panel shows a large empty canvas area. On the right side of the canvas, there is a teal backpack icon. Below the canvas, there are three vertical icons: a target icon, a plus sign, and a minus sign, along with a trash can icon at the bottom right.

At the bottom of the page, there are links for "Privacy Policy and Terms of Use" and "Accessibility: [accessibility.mit.edu](http://accessibility.mit.edu)".

# キャンバスがクリックされたら

ai2.appinventor.mit.edu/#5275968697597952

MIT APP INVENTOR

Projects Connect Build Settings Help My Projects View Trash Guide Report an Issue English akiyolab6@gmail.com

Omikuji Screen1 Add Screen ... Remove Screen Project Properties Publish to Gallery Designer Blocks

Blocks

- Built-in
  - Control
  - Logic
  - Math
  - Text
  - Lists
  - Dictionaries
  - Colors
  - Variables
  - Procedures
- Screen1
  - Canvas1
- Any component

Viewer

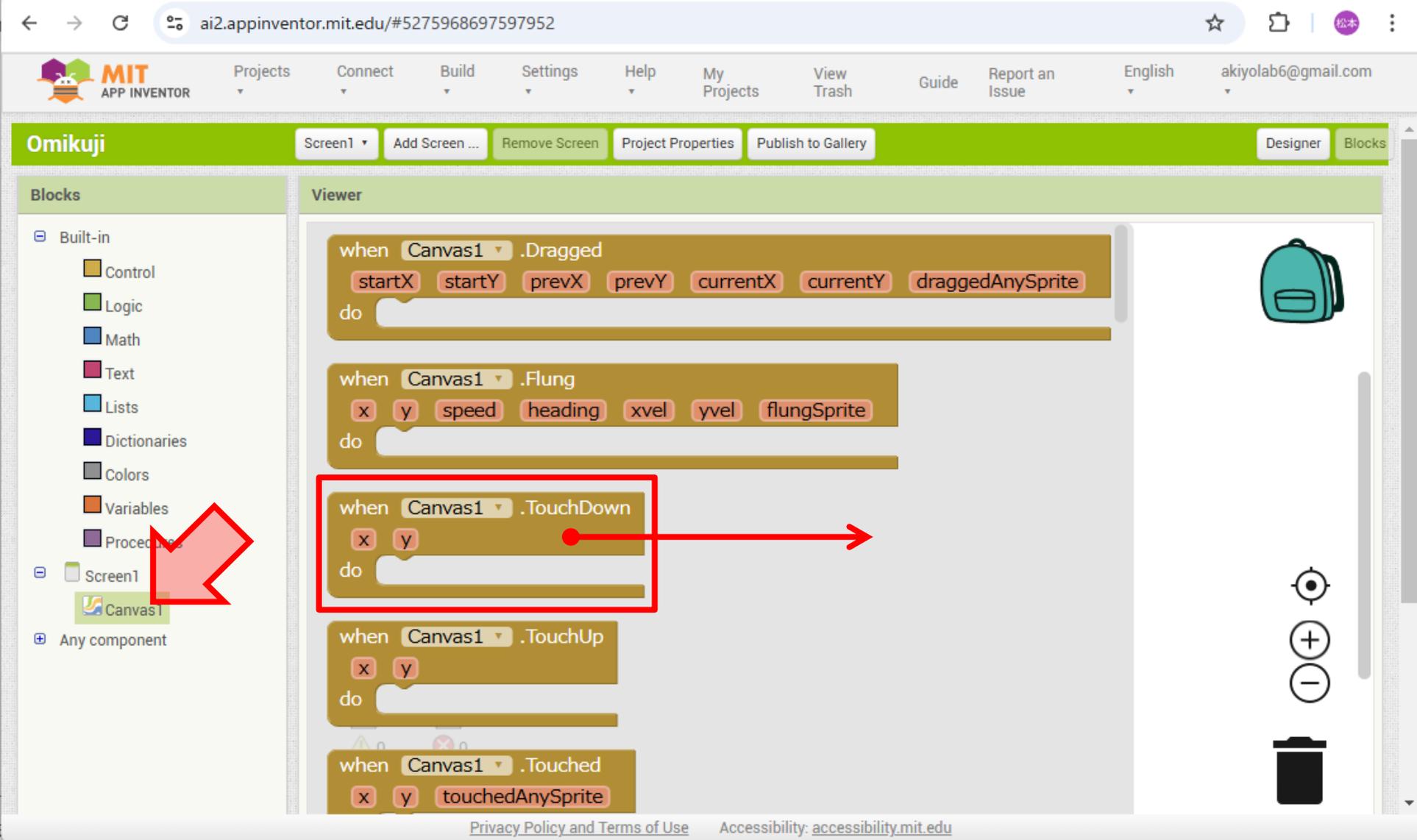
```
when Canvas1 .Dragged
  startX startY prevX prevY currentX currentY draggedAnySprite
do

when Canvas1 .Flung
  x y speed heading xvel yvel flungSprite
do

when Canvas1 .TouchDown
  x y
do

when Canvas1 .TouchUp
  x y
do

when Canvas1 .Touched
  x y touchedAnySprite
```



# 背景画像を変更する

ai2.appinventor.mit.edu/#5275968697597952

MIT APP INVENTOR

Projects Connect Build Settings Help My Projects View Trash Guide Report an Issue English akiyolab6@gmail.com

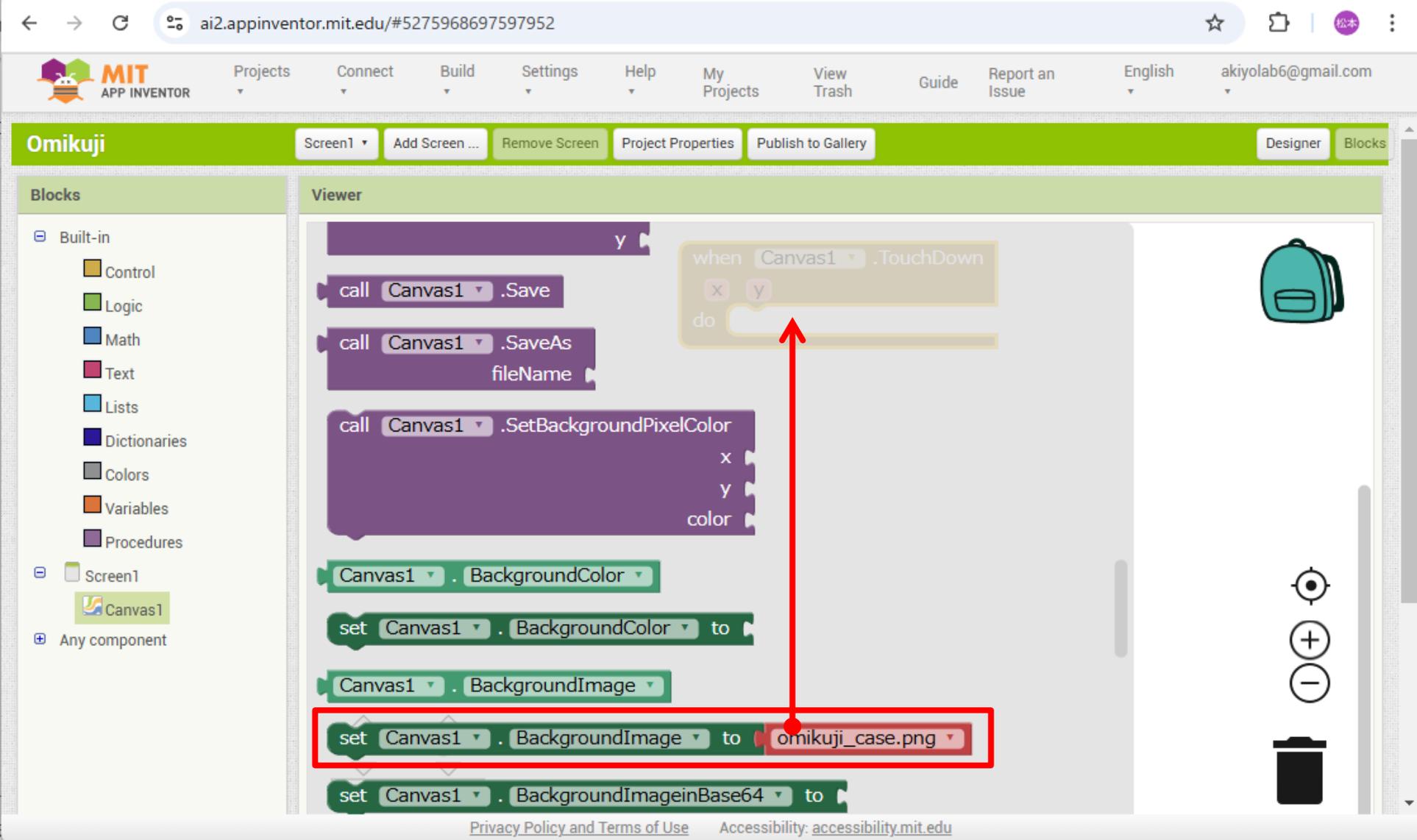
Omikuji Screen1 Add Screen ... Remove Screen Project Properties Publish to Gallery Designer Blocks

Blocks

- Built-in
  - Control
  - Logic
  - Math
  - Text
  - Lists
  - Dictionaries
  - Colors
  - Variables
  - Procedures
- Screen1
  - Canvas1
- Any component

Viewer

```
when Canvas1 . TouchDown
do
  call Canvas1 . Save
  call Canvas1 . SaveAs fileName
  call Canvas1 . SetBackgroundPixelColor x y color
  Canvas1 . BackgroundColor
  set Canvas1 . BackgroundColor to
  Canvas1 . BackgroundImage
  set Canvas1 . BackgroundImage to omikuji_case.png
  set Canvas1 . BackgroundImageinBase64 to
```



The screenshot shows the MIT App Inventor web interface. The top navigation bar includes the MIT App Inventor logo and various menu items. The main workspace is divided into a 'Blocks' panel on the left and a 'Viewer' panel on the right. The 'Blocks' panel shows a tree view with 'Screen1' and 'Canvas1' selected. The 'Viewer' panel displays a sequence of code blocks for the 'Canvas1' component. A red box highlights the 'set Canvas1 . BackgroundImage to omikuji\_case.png' block, and a red arrow points from this block to a 'do' block in the 'when Canvas1 . TouchDown' event handler.

# omikuji\_daikichi.png(㊦)

ai2.appinventor.mit.edu/#5275968697597952

MIT APP INVENTOR

Projects Connect Build Settings Help My Projects View Trash Guide Report an Issue English akiyolab6@gmail.com

Omikuji Screen1 Add Screen ... Remove Screen Project Properties Publish to Gallery Designer Blocks

Blocks

- Built-in
  - Control
  - Logic
  - Math
  - Text
  - Lists
  - Dictionaries
  - Colors
  - Variables
  - Procedures
- Screen1
  - Canvas1
- Any component

Viewer

```
when Canvas1 . TouchDown
do set Canvas1 . BackgroundImage to omikuji_case.png
```

omikuji\_case.png  
omikuji\_daikichi.png  
omikuji\_kichi.png  
omikuji\_kyou.png

Show Warnings

Privacy Policy and Terms of Use Accessibility: [accessibility.mit.edu](https://accessibility.mit.edu)

# ひとまず完成

ai2.appinventor.mit.edu/#5275968697597952

MIT APP INVENTOR

Projects Connect Build Settings Help My Projects View Trash Guide Report an Issue English akiyolab6@gmail.com

Omikuji Screen1 Add Screen ... Remove Screen Project Properties Publish to Gallery Designer Blocks

Blocks

- Built-in
  - Control
  - Logic
  - Math
  - Text
  - Lists
  - Dictionaries
  - Colors
  - Variables
  - Procedures
- Screen1
  - Canvas1
- Any component

Viewer

```
when Canvas1 . TouchDown
do set Canvas1 . BackgroundImage to omikuji_daikichi.png
```

Show Warnings

Privacy Policy and Terms of Use Accessibility: [accessibility.mit.edu](https://accessibility.mit.edu)

**エミュレータで実行する**

# アプリをビルド（生成）する

The screenshot shows the MIT App Inventor web interface. At the top, a blue banner contains the text "アプリをビルド（生成）する". Below it, the browser address bar shows the URL "ai2.appinventor.mit.edu/#5275968617597952". The navigation bar includes "Projects", "Connect", "Build", "Settings", "Help", "My Projects", "View Trash", "Guide", "Report an Issue", "English", and "akiyolab6@gmail.com". The main interface is titled "Omikuji" and features a green header with "Screen1", "Add S...", "Android App (.apk)", "Android App Bundle (.aab)", "Properties", and "Publish to Gallery" buttons. The "Build" menu is highlighted with a red arrow, and a dropdown menu shows "Android App (.apk)" and "Android App Bundle (.aab)". The "Code" block is also highlighted with a red arrow. The "Blocks" panel on the left lists categories like Control, Logic, Math, Text, Lists, Dictionaries, Colors, Variables, and Procedures. The "Viewer" panel shows a code block: "when Canvas1 . TouchDown" followed by "do set Canvas1 . BackgroundImage to omikuji\_daikichi.png". A backpack icon is visible on the right side of the code block. The bottom of the interface includes a "Show Warnings" button and a footer with "Privacy Policy and Terms of Use" and "Accessibility: accessibility.mit.edu".

# 生成されたアプリをPCにダウンロードする

ai2.appinventor.mit.edu/#5275968697597952

MIT APP INVENTOR

Projects Connect Build Settings Help My Projects View Trash Guide Report an Issue English akiyolab6@gmail.com

Omikuji Screen1 Add Screen ... Remove Screen Project Properties Publish to Gallery Designer Blocks

Blocks

- Built-in
  - Control
  - Logic
  - Math
  - Text
  - Lists
  - Dictionaries
  - Colors
  - Variables
  - Procedures
- Screen1
  - Canvas1
- Any component

Viewer

Android App for Omikuji

Download .apk now



omikuji\_daikichi.png

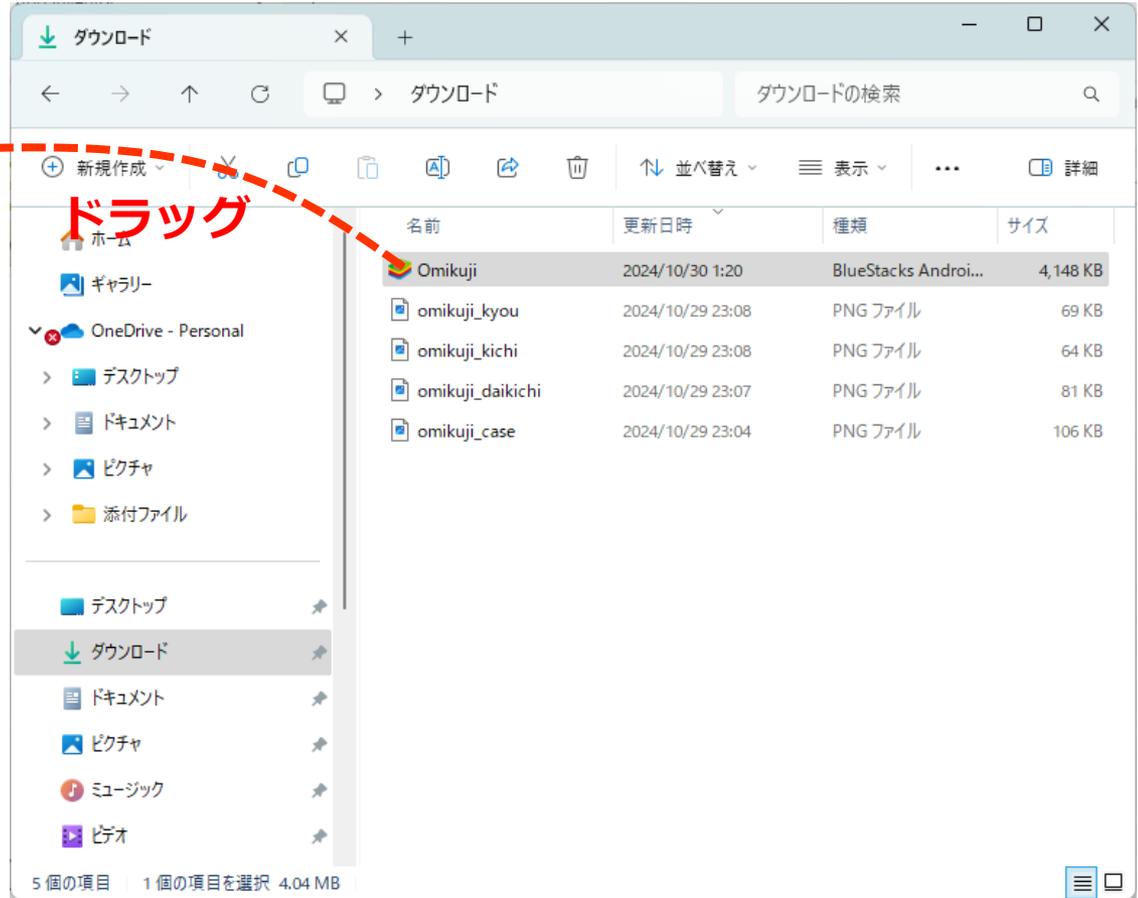
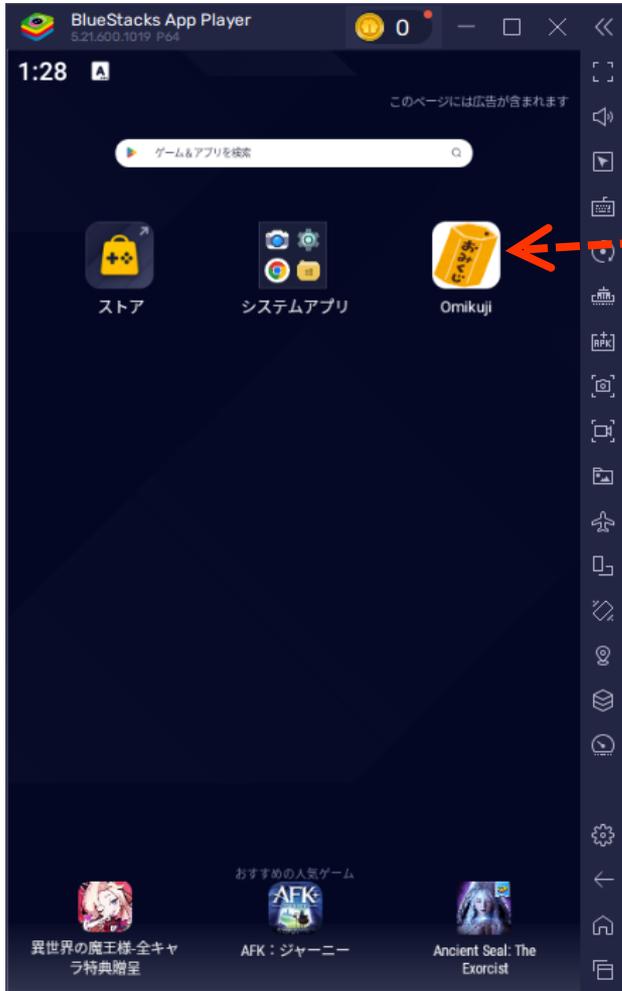
Click the button to download the app, right-click on it to copy a download link, or scan the code with a barcode scanner.  
Note: this link and barcode are only valid for 2 hours. See [the FAQ](#) for info on how to share your app with others.

Dismiss

Show Warnings

Privacy Policy and Terms of Use Accessibility: [accessibility.mit.edu](#)

# アプリをエミュレータで起動する



# タップして画像が変われば成功

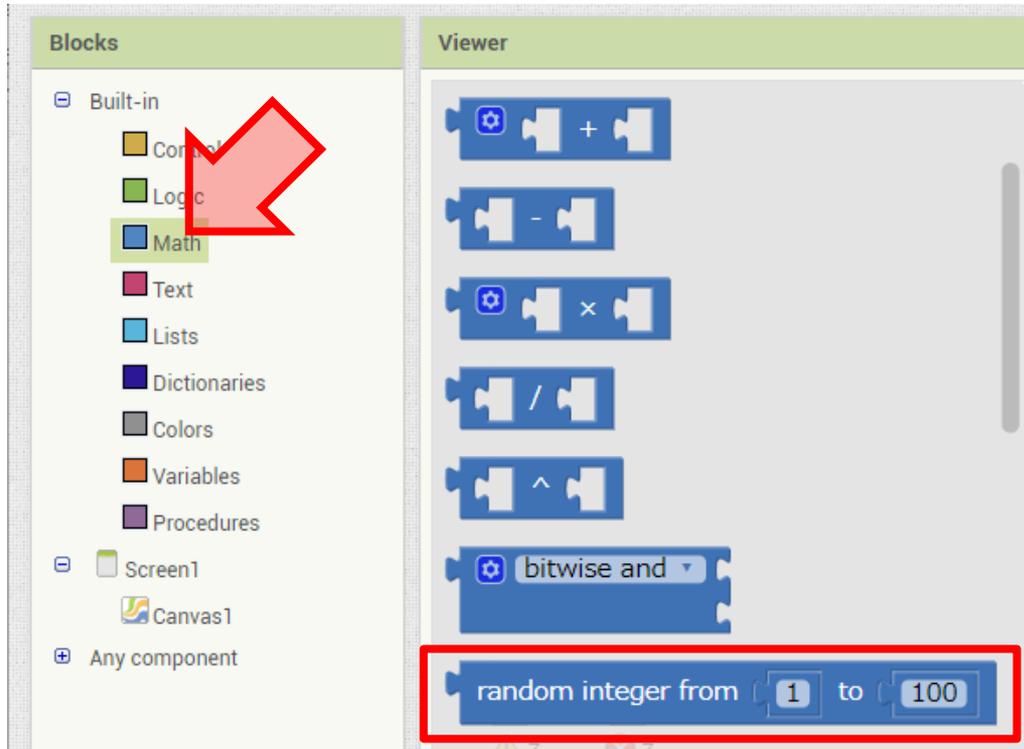


**おみくじを改良する**

# 2種類の結果が出るようにする

- ランダムな数 (=乱数) を生成する
- 乱数の値によって表示画像を変える

# ランダムな数 (= 乱数) を生成する

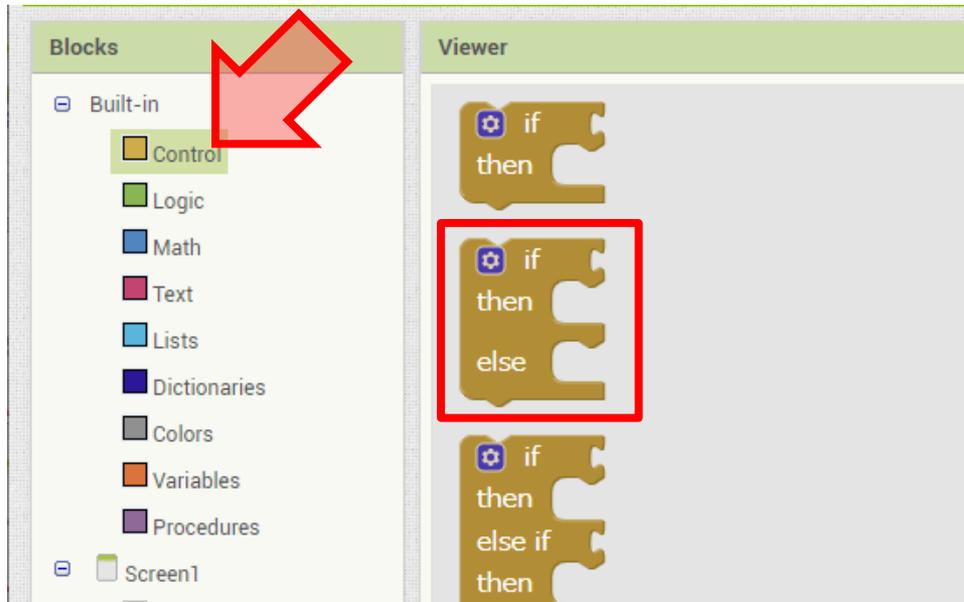


The image shows the Scratch interface. On the left is the 'Blocks' palette with categories: Built-in, Control, Logic, Math, Text, Lists, Dictionaries, Colors, Variables, and Procedures. A red arrow points to the 'Math' category. On the right is the 'Viewer' area showing a stack of math blocks: '+', '-', '×', '/', '^', and 'bitwise and'. A red box highlights the 'random integer from 1 to 100' block at the bottom of the stack.

initialize global `r` to `0`

set global `r` to random integer from `1` to `100`

# 乱数の値によって表示画像を変える



```
initialize global r to 0

when Canvas1 .TouchDown
  x y
  do
    set global r to random integer from 1 to 100
    if
    then set Canvas1 . BackgroundImage to omikuji_daikichi.png
    else
```

# 乱数の値によって表示画像を変える



▼をクリックして $\leq$ に変更

```
initialize global r to 0

when Canvas1 .TouchDown
  x y
  do
    set global r to random integer from 1 to 100
    if get global r ≤ 50
    then set Canvas1 . BackgroundImage to omikuji_daikichi.png
    else set Canvas1 . BackgroundImage to omikuji_kichi.png
```

# おみくじをさらに改良する

- 3種類以上の結果が出るようにする
- 1回引くごとにおみくじ入れの画像に戻るようにする【プログラミング経験者向け】

# ここまでできた人は 実機でアプリを動かしてみよう

- それぞれ別の資料になっているので、  
Android端末を持っている人はAB両方、  
持っていない人はBだけやってみよう
  - A) 実機にインストールして実行する
    - Android端末を所持している人のみ
  - B) 実機にインストールせず実行する
    - Android/iOS両方OK (ただしTGwifi非対応)