Your Course Syllabus

CODDY - International Coding and Design School for Teens and Kids

The basics of App Inventor mobile app development course. Module 1

Learning goals are to get acquainted with a mobile application developer profession, to learn the coding foundations and programming algorithms, to create your own mobile applications

Course Syllabus:

Day one

First look at App Inventor website

- Introduction to the App Inventor development environment;
- Application screen elements and their settings;
- Creation of the first scripts;
- How to save and test your application.

Learning outcome: we studied the App Inventor interface, got to know how to add and remove components, learned the properties of the screen, buttons and labels, wrote our first application and tested it.
Practical task: add components to the application screen and configuring them, write scripts for the application, save the application.

Day two

Creating Dice and Minecraft Applications

- The Cube project - data preparation;
- New components from the Sensor and Mathematics categories;
- Minecraft project - data preparation and screen setup;
- Writing scripts for the Minecraft project, working with random numbers.

Learning outcome: we studied a new component - the Accelerometer Sensor, learned how to work with random numbers, wrote and debugged two new applications.
Practical task: create screens and write scripts for two applications, save and debug applications.

Day three

Piano and Animal Voices Applications

- Piano app - Data preparation and screen design;
- Add sounds to the app - piano notes programing;
- Uploading data to the Animal Sounds project and screen design;
- Programming buttons for animal sounds.

Learning outcome: we learned how to use different locations of application elements, use sounds in projects, and created two new applications.
Practical task: create screens and write scripts for two applications using sounds.

Day four

Video Player and Music Player Applications

- Video Player application - project preparation;
- Display the duration of the video on the application screen;
- Music Player app - Data loading and screen design;
- Programming practice - writing scripts for each song.

Learning outcome: we studied new components: a player, a video player, learned how to change the size of buttons to fit the size of the screen, display text on the screen, wrote two new applications.
Practical task: upload data to projects - pictures, text, sounds, add components and write scripts for new applications.

Your Course Syllabus

CODDY - International Coding and Design School for Teens and Kids

The basics of App Inventor mobile app development course. Module 2

Learning goals are to get acquainted with a mobile application developer profession, to learn the coding foundations and programming algorithms, to create your own mobile applications

Course Syllabus:

Day one

Lucky Number and "What kind of animal am I?" Applications

- Creating a design for the "Lucky Number" project;
- Conditions in programming, creating a program using conditions;
- Finishing the conditions checking - logical addition and multiplication;
- Project "What kind of animal am I?" - data loading and screen design;
- Adding checkboxes to the application design and checking conditions.

Learning outcome: we learned how to use new components, studied the concepts of condition, logical addition and multiplication, created two new applications using new components and conditions.
Practical task: write scripts for new applications using conditions.

Day two

Confetti and Flying Balls Apps

- Creating a design for the Confetti project;
- Assigning colors to screen elements;
- Programming the appearance of confetti;
- Create a new screen and transition between screens;
- Step-by-step practice - programming the behavior of flying balls in the application.

Learning outcome: we learned how to create several screens in the application and switch between them, studied the color settings, learned how to create a random color in the program, created two new applications.
Practical task: create scripts for new applications using the studied components and elements.

Day three

Creating the Paint App

- Discussing the possibilities of the drawing application;
- Programming the color selection buttons;
- Adding the ability to choose any colors for drawing;
- Adding the ability to change the size of the brush.

Learning outcome: we studied the components: text, image selector, slider, learned how to work with coordinates and conditions.
Practical task: write scripts for the Paint application using the newly studied components.

Day four

Creating Mathematical Quiz App

- Creating a design for the Mathematical Quiz application;
- Variables in programming. Adding variables to our scripts;
- Programming buttons for mathematical operations;
- We program the second screen and implement the correct answer check;
- Programming the Restart button.

Learning outcome: we studied the concept of variable, in practice fixed the use and configuration of various components, learned how to use the account in projects.
Practical task: make scripts for the application.

Your Course Syllabus

CODDY - International Coding and Design School for Teens and Kids

The basics of App Inventor mobile app development course. Module 3

Learning goals are to get acquainted with a mobile application developer profession, to learn the coding foundations and programming algorithms, to create your own mobile applications

Course Syllabus:

Day one

Quiz and To-do List Apps

- Creating a design for the "Quiz" project;
- Lists in programming, creating a program using lists;
- Introduction to new components: list and password;
- Project "To-do List" - creation and design of two screens.

Learning outcome: we learned how to use new components, studied the use of lists, created two new applications using new components and lists.
Practical task: write scripts for new applications using lists.

Day two

Barcode Scanner and Pedometer Apps

- Creating a design for a "Barcode Scanner";
- Consolidation of skills of working with lists;
- Introduction to new components: barcode scanner, pedometer;
- The Pedometer project - the design creation and study of the pedometer principle of operation.

Learning outcome: we consolidated the skills of working with lists, studied the components "barcode scanner" and "pedometer", created two new applications.
Practical task: create scripts for new applications using new components, lists and formulas.

Day three

Phone and Voice Recorder Apps

- Creating a design of two screens for the "Phone" project;
- The concept of a procedure, a procedure with parameters. Procedures in the "Phone" project;
- Creating a design for the Voice Recorder project;
- New components: call, dialer;
- Preparation for the finished projects presentation.

Learning outcome: we studied the new components "call" and "dialer" and applied them in the project, got acquainted with the procedures in programming.
Practical task: make scripts for application buttons.

Day four

Project activity. Presentation of finished projects

- Discussion of the project idea, rules for conducting project classes;
- Implementation of the project "My portfolio";
- Preparation for the project presentation;
- Demonstration of ready projects and discussion of the project lesson results.

Learning outcome: we collected the projects created during the course into a digital portfolio, created a design and independently worked out all the stages of creating an application, presented ready projects.
Practical task: create scripts for your applications using the knowledge and skills acquired during the course, project presentation.

Your Course Syllabus

CODDY - International Coding and Design School for Teens and Kids

The basics of App Inventor mobile app development course. Module 4

Learning goals are to get acquainted with a mobile application developer profession, to learn the coding foundations and programming algorithms, to create your own mobile applications

Course Syllabus:

Day one

Basics of creating games. Mini-Pacman game

- Creating the first game, learning the concept of sprite;
- Implementation of sprite control using buttons;
- Programming practice - we implement the interaction between the characters.

Learning outcome: we studied the concept of sprite, got the skills to create games and created our first game.
Practical task: create scripts for the game "mini-Pacman".

Day two

Creating the game "Catch the Mole"

- Preparing files for the game, creating the design of game screens;
- Learning the "local variables" concept;
- Using procedures and processing screen touches in the project;
- Programming practice - creating the game "Catch the Mole".

Learning outcome: we learned new programming concepts, created a game with background music
Practical task: write scripts for the game using procedures with local variables.

Day three

The Asteroid game. Accelerometer Component

- Creating the game design;
- Introduction to the Accelerometer component;
- Implementation of player control;
- Determining the behavior of sprites depending on situations;
- Programming practice - creating the game "Asteroid".

Learning outcome: studied the Accelerometer component, created a game with flying asteroids and implemented player control using the tilt of the phone.
Practical task: create scripts for the game, link the start and stop buttons with the game, program the use of a timer to count the time.

Day four

Control of the player in the game. Creating Catch the balls game

- Realization of the flight of balls;
- Processing of movement by touching with a finger;
- Counting the balls caught and displaying the result on the screen;
- Programming practice - creating a game, implementing player control.

Learning outcome: we learned how to implement player control in several ways at the same time, created a new game.
Practical task: write commands for interaction between sprites, create scripts for the game.

Your Course Syllabus

CODDY - International Coding and Design School for Teens and Kids

The basics of App Inventor mobile app development course. Module 5

Learning goals are to get acquainted with a mobile application developer profession, to learn the coding foundations and programming algorithms, to create your own mobile applications

Course Syllabus:

Day one

The game "Mario and Marbles". Implementation of game variants

- Creating a design for the game;
- Use in-game score and counting of lives;
- Game management options;
- Implementation of different game options depending on the ball caught.

Learning outcome: we learned how to use the score of points and the counting of the player's lives in the game, created a game with the chosen control method.
Practical task: write code for the game using procedures.

Day two

Complication of game options. The Ping Pong game

- Creating the design of game screens;
- Implementation of game over notification;
- Changing the appearance and speed of the ball when touching the side edge;
- Using random numbers to implement different options and complicate the game.

Learning outcome: we created a game in which the ball bounces off the platform and changes its speed, implemented platform control with a finger.
Practical task: create scripts for the game.

Day three

Creating a Golf Game

- Creating a game design using a tabular layout;
- Programming of moving objects;
- Programming Practice - Golf application implementation.

Learning outcome: we created a new application, consolidated the skills of creating applications with moving objects.
Practical task: write scripts for the Golf application.

Day four

Project activity. Presentation of finished projects

- Discussion of the project idea, rules for conducting project classes;
- Continuing to work on the "My Portfolio" project or creating your own project, for example, "Click or loose";
- Preparation for the project presentation;
- Demonstration of ready projects and discussion of the project lesson results.

Learning outcome: we added new apps to portfolio, implemented new application features using the studied components, independently worked out the stages of creating our application, presented ready projects.
Practical task: create scripts for your applications using the knowledge and skills acquired during the course, project presentation.

Your Course Syllabus

CODDY - International Coding and Design School for Teens and Kids

The basics of App Inventor mobile app development course. Module 6

Learning goals are to get acquainted with a mobile application developer profession, to learn the coding foundations and programming algorithms, to create your own mobile applications

Course Syllabus:

Day one

Nested loops and extended conditions. The 15 puzzle (Pyatnashki) game

- Creating a game design;
- Use of nested loops and extended conditions in the code;
- Use of lists in the code;
- Programming practice - creating the Pyatnashki game.

Learning outcome: we implemented the Pyatnashki game using complicated programming constructions.
Practical task: writing code for a game using lists, nested loops and extended conditions.

Day two

Text and speech in programs. The Translator App

- Creating a design for the Translator application;
- Introduction to new components: text-to-speech, speech recognition;
- Using lists to select languages;
- Learning the concept of API;
- Programming practice - creating a Translator application.

Learning outcome: we learned how to use the API in our programs, learned new components for working with speech and text.
Practical task: create scripts for an application using components for working with text and speech.

Day three

Working with photos and camera in the app. The Camera and Notes Apps

- Work with the camera of the mobile application and databases;
- New components: camera, video Camcorder, CloudDB and TinyDB databases;
- Programming practice - creating a Camera application with two screens photos and videos, Notes applications with several types of databases.

Learning outcome: we learned how to work with the camera in a mobile application, use several databases in one project, and created two applications.
Practical task: write a mobile app for for working with photos both videos and for working with notes using the studied components.

Day four

Project activity. Creating your own project

- Options for modification and refinement of the portfolio project;
- Implementation of your application project;
- Demonstration of ready projects and discussion of the results of the project lesson.

Learning outcome: we supplemented the portfolio with new projects, implemented new application features using the studied components, independently worked out the stages of creating our application, presented ready projects.
Practical task: create scripts for your application using the knowledge and skills acquired during the course, outline the presentation of your project.

Your Course Syllabus

CODDY - International Coding and Design School for Teens and Kids

The basics of App Inventor mobile app development course. Module 7

Learning goals are to get acquainted with a mobile application developer profession, to learn the coding foundations and programming algorithms, to create your own mobile applications

Course Syllabus:

Day one

Applications with sound. Vibraphone Application. Part 1

- The idea of the Vibraphone project;
- Creating the design of application screens;
- Uploading audio files to the app;

Learning outcome: we studied the ways of using sound files in the application, created the design of the Vibraphone application for further software implementation.
Practical task: create an application design, add control buttons to the application screen.

Day two

The Vibraphone Application. Part 2

- Using a database to store the played melody;
- Implementation of the application code using procedures;
- Audio assignment for app buttons;
- Programming practice - creating an application with audio files.

Learning outcome: we created an application with the ability to play and record a melody.
Practical task: create procedures for the Vibraphone application, programming application buttons to work with sound.

Day three

The game "Find a couple". Part 1

- Uploading images and creating a design for the game;
- Creating variables for the game;
- Programming procedures for creating lists.

Learning outcome: game design and prepared variables for further work.
Practical task: create a 4x4 table for game screens, create scripts with procedure calls.

Day four

The game "Find a couple". Part 2

- Creating procedures to improve the game;
- Programming of 16 buttons with procedure calls;
- Finishing of the game creation. Testing and debugging the application.

Learning outcome: we consolidated the skills of working with procedures, completed the creation of a memory training game.
Practical task: program buttons with procedure calls, launch and debug a ready application.

Your Course Syllabus

CODDY - International Coding and Design School for Teens and Kids

The basics of App Inventor mobile app development course. Module 8

Learning goals are to get acquainted with a mobile application developer profession, to learn the coding foundations and programming algorithms, to create your own mobile applications

Course Syllabus:

Day one

Cloud databases. Creating the Dino App

- Upload files for the project and create a splash screen design and landscape game screen;
- Rotate the screen to a horizontal position using the code;
- Connecting a cloud database;
- Character animation and the effect of constant movement in the game.

Learning outcome: learned how to flip the phone screen, got acquainted with the cloud database, learned how to implement character animations and the effect of constant movement in the game.
Practical task: writing code for a game with a screensaver, screen rotation, score, timers, object movement and Dino animation.

Day two

Team and individual work on the application project

- Mobile application pipeline;
- Mobile application development careers and development team roles;
- Discussion of the idea of your mobile application, the final project;
- Team application development in the MIT App Inventor environment;
- Implementation of the project of your application according to the plan, either individually or in a team.

Learning outcome: we learned mobile app careers and development team roles, about the stages of project creation, created a prototype of the final application project, created a final team or individual project.
Practical task: preparation, design and programming of your mobile application, the final project of the course.

Day three

Creating presentation outline and the presentation of final project

- Consolidation of previously studied materials;
- Publishing mobile applications, App Inventor Gallery and alternative platforms;
- Complete the final project;
- Outlining and creating presentation of projects.

Learning outcome: we completed the final project, prepared a presentation.
Practical task: checking and testing the final project, creating a presentation, preparing presentation speech.

Day four

Summing up and presentation of course projects

- Testing and debugging your projects;
- Preparation for the presentation of projects, the rules of the final lesson;
- Presentation of projects. Summing up the course results;
- Further development and learning in software and mobile applications development.

Learning outcome: we presented the projects created during the course, received recommendations for further learning and development.
Practical task: prepare a speech and make a presentation of your project.