Glossary

1-1 entity relationship

An ER that enables one data object in an entity to be associated with only one data object in a set of entities.

1-N entity relationship

An ER that enables one data object in an entity to be associated with many data objects in a set of entities.

2D Array

A collection of storage locations organized like a matrix, grid, or checkerboard.

abstract class

A class that cannot be instantiated and defines instance fields and methods for subclasses; differs from an interface mainly in that it can contain method implementations.

abstraction

Hiding data or details.

access modifier/specifier

Controls how other methods and classes can access the variables and methods in a class (private, protected, public).

ACCESS_COARSE_LOCATION

A permission you can add to the Android™ Manifest to allow the app to access approximate location information using network providers (cell towers and Wi-Fi access points).

ACCESS_FINE_LOCATION

A permission you can add to the Android Manifest to allow the app to access precise location information using Global Positioning System (satellite) first, then network providers if the former is not available.

accessor method

A method that gets (accesses) the value of an instance field, for example getTitle().

activity

In an Android app, the entry point where your app begins execution.

Agile backlog

The list of requirements identified by the client and prioritized from highest to lowest priority.

Agile development

A software development process with short and frequent deliverable iterations. It allows for more client involvement and faster delivery.

Agile sprint

Also known as “iteration”; the development cycle in the Agile development process.

Agile task list

The final list of tasks to be worked on during a sprint.

Agile user story

The items identified in the task list. Stories are usually written in an informal manner.

algorithm

A sequence of instructions that accomplishes a task.

algorithm efficiency

The aspects of an algorithm that determine the amount of resources used by the algorithm (like CPU time and memory space).

app

An application that can run on the Android operating system.

application back end

The layer of a software application that works to support the front end. It resides on a server accessible over a network and usually contains centralized data and file storage for the application. It is also referred to as the “server side”.

application front end

The layer of a software application that a user can see and interact with. It is also referred to as the “client side”.

application programming interface (API)

A set of tools, such as classes and methods, for building an app.

array

A collection or list of similar data items, accessed through a single variable reference.

ArrayList

A class for managing a list of objects, similar to an array.

auto-unbox

A process that automatically converts numeric and Boolean objects to their primitive versions.

autobox

A process that automatically converts numeric and Boolean primitives to their object versions.

BaaS

Backend as a Service; back-end services provided over the Internet by an organization. Services include data storage, file storage, backup services, notification services, and other features that are commonly used across applications.

best-so-far variable

A variable role that stores the best value during iteration, such as the lowest golf score, the highest quiz score.

binary

The base-2 number system consisting of digits 0 and 1.

binary search

A search algorithm that compares the item at the midpoint of asortedlist to the target.

- If the items are equal, then the target is found.
- If the midpoint item is greater than the target, then the algorithm repeats the search in the bottom half of the list.
- If it is less than the target, then it repeats the search in the top half of the list.
- The process repeats until the target is found or the list is exhausted.

Boolean expression

An expression that evaluates to either true or false, as in (x > 0).

boundary conditions

In Java, the if statements that limit or define the execution path of code.

camelcase

A convention for naming variables that capitalizes the first letter of every word without spaces.

checked exception

An exception that*must*be managed or handled. Checked exceptions are usually related to input and output, such as a missing file or a missing network resource. The compiler "checks" that a program has handled this type of exception.

class

A collection of code that serves a common purpose.

code walk-through

A process of learning or testing a section of code, one line at a time, while manually recording variable values and other important information.

comments

Helpful information written into your program, but ignored by the compiler.

Comparable

A Java interface that is implemented by classes to allow objects of the Comparable type to be compared.

compareTo

The only method in the Comparable interface that programmers must override whenever implementing the interface. It is referred to as the "natural comparison" method of the class.

compile

To convert human-readable code to machine-readable code.

component tree

A structure that visually represents user interface components.

concatenation

Adding two String objects together using the + operator.

conditional

A statement or expression that controls the path of execution, depending on whether the expression evaluates to true or false.

constant

A variable that does not change value.

constructor

The code in a class definition that initializes the instance fields.

CRUD

An acronym used in database development that stands for the Create, Read, Update, and Delete database operations.

curly braces

The characters { and } that denote the beginning and end of a block of code.

Data persistence

Information that is saved between multiple executions of a program.

data validation

The process of ensuring that the data entered into a computer system is correct and meaningful. This usually involves a set of validation rules embedded in the computer application.

database

A repository of data objects modeled using data classes. Backendless uses JSON format, so all data is stored as name-value pairs.

de-reference

Given an object reference, de-reference means retrieving the data for the object.

default constructor

The constructor called from a class's superclass when no constructor is provided.

delimiting character

A character that separates data items, as in firstname,lastname or firstname | lastname.

DeMorgan's Law

A method you can use to rewrite the negative version of complex conditionals, for example !(cold && raining).

double

A type of primitive variable that can hold any numeric value including those with decimals such as 6.3, –0.9, and 60293.93032.

Dynamic (late) binding

Occurs when the JVM (Java Virtual machine) determines the actual type of an object at runtime, not the reference type by which it is accessed.

empty string

A string value that has no characters, represented in code as "".

encapsulation

The process of keeping related data and methods together and defining an object for them.

entity

An entity represents a class of data objects that have the same data attribute. It is equivalent to a database table.

- Each data attribute is represented as a column in the entity with a specific data type.

Each data object is represented as a record in the entity.

entity relationship (ER)

Defines how two data objects are associated in a database.

epsilon

A value that represents a "close-enough" comparison between two other values.

escape sequence

A sequence of characters that have special meaning in Java; for example, \n represents a newline.

event

Anything that occurs in your app to which you might want to respond with code.

event handler

Code that executes when a given event is detected.

exception

A type of runtime error that indicates something unexpected (exceptional) occurred.

extends

When a subclass is created, the extends keyword specifies the superclass (or parent class).

feature

In Android Development, an XML trait that indicates some Android device feature that is used by the app; may be used to restrict which type of device an app can be installed on.

for loop

A way to iterate, especially when you know how many times you want to loop, commonly used to iterate over arrays and ArrayLists. Also known as a "standard for loop".

for-each loop

A looping construct primarily used for iterating when you want to simply view or display items in an array or ArrayList.

game development framework

A set of libraries that provides classes and methods, which implement functionality that is commonly used in creating games.

GeoPoint

A Backendless object that contains variables and methods for latitude and longitude.

Google Play services

A background service and API package for Android™ devices that provides apps with the latest, Google-powered features, such as Maps, Google+, and integration with the Google Play store.

GoogleApiClient

The interface that represents the main entry point for Google Play services integration. Its abstract methods include the connect() and disconnect() methods to start and end the connection with Google Play services.

GoogleMap

The main entry point for all methods related to the map. It cannot be instantiated directly. Instead, you obtain an instance of this class from the getMap() method on a MapFragment.

hexadecimal

The base-16 number system consisting of digits 0–9 and letters A, B, C, D, E, and F.

HTTP request

A communication sent over the World Wide Web from a user's computer ("client") to the back end ("server") using Hypertext Transfer Protocol (HTTP). Request methods are classified as GET, POST, PUT, or DELETE.

HTTP response

A communication sent over the World Wide Web from the back end ("server") to the user's computer ("client") in response to an HTTP request, using Hypertext Transfer Protocol (HTTP).

implicit intent

A way of signaling to the Android OS that your app needs it to provide some external service to accomplish a given task; also allows the user to select which app is used at run time.

inherit or inheritance

When a subclass created automatically gains all the methods and fields of its superclass or parent class.

initialization list

A way to declare and initialize an array in one step.

initialization list

A collection of items, such as strings, that declare and assign elements to an array.

initialize

Assign a value to a variable for the first time.

insertion sort

A sort algorithm that repeatedly compares and inserts items into a subset at the front of the list that is considered already sorted.

instance

A single occurrence of an object belonging to a class of objects. An instance of a class has access to the methods of that class.

instance field

A variable in a class, used to describe data for the class, for example the title of a Song.

instanceof

An operator that determines the data type of an object.

instantiate

To create an object from a class definition, for example new Song (“Twist and Shout”).

int

A type of primitive variable that can hold whole numbers such as 3, –76, 20393.

integer overflow

A condition that occurs when a very large integer exceeds its storage capacity.

Integrated Development Environment (IDE)

A program that aids the software development project; organizes files, compiles code, prototypes the user interface.

Interface

An abstract type that acts as a “contract” for classes, requiring them to provide implementation for stated methods.

iteration/iterate

Also called looping, the process of repeating the same steps using a convenient construct, such as a for or while statement.

jagged array

Any multidimensional array or array-like structure in which there are more elements in some of the contained structures than there are in others in the same dimension.

Java Virtual Machine (JVM)

Software that allows a Java program to run on a wide variety of operating systems.

Javadoc

A document generator built into the Java compiler that automatically generates documentation in an online format.

JSON

A data interchange language that is consistent and easy to read by both computers and humans.

key-value pairs

A set of two data-related items; a key that represents a known entity such as *name* or *size*, and a value that represents the specific data such as “*Cynthia*” or “*medium*”.

LIFO

Last-in/First-out. When managing a stack of items, the last item to be added is the first item to be removed.

location services

Services available in the Android framework that allow apps to detect the device’s location.

main

A keyword that is the entry point where your program begins execution.

malware

Friendly- or useful-looking software that is actually harmful to you or your computer, your phone, mobile device, etc.

MapFragment

A class that extends Fragment and can be added to an activity using its XML component. It is a wrapper around the map view on the View layer, and provides access to the GoogleMap object on the Controller layer.

marker

An icon placed at a particular point on the map’s surface to represent a location on the map.

merge sort

A “divide-and-conquer” sort algorithm that recursively calls itself on the left sub-list and the right sub-list, until the sub-lists contain only one item. Then it starts to merge the sub-lists repeatedly into a sorted list, until all list items are merged and sorted into one big list.

method

Similar to a function or procedure, a method is a collection of code that describes what an object can do, for example setTitle(“”).

modulus operator

Denoted with a percent sign, %, it calculates the remainder of integer division.

mutator method

A method that sets (mutates) the value of an instance field, for example setTitle(“Shout!”).

N-N entity relationship

An ER that enables many data objects in an entity to be associated with many data objects in a set of entities.

nested loop

A looping construct that consists of two loops, one loop inside of another

Nielsen's Usability Heuristics

A set of broad rules of thumb to help designers create software products that are easy for users to interact with.

null

A keyword in Java that indicates that an object variable has not been assigned a value—in other words, an object reference has not been created.

null value

The value assigned to an object reference when it has been created but not given an initial value.

object

A representation of data that serves a similar purpose or is related in some way.

object reference

An object variable whose value points to a location in memory where the data for the object is stored.

object-oriented

A type of programming based on objects that represent data.

operator precedence

The order in which operators are executed.

overload

Creating one or more methods in the same class with the same identifier BUT different number, type, and/or order of parameters.

override

A subclass that defines a method that effectively replaces the functionality originally defined in the superclass.

parameter

A variable that is passed into a method.

partially filled array

An array that has some elements without data, and therefore contains zeroes or null values.

permission

In Android Development, an XML trait that alerts the end user to the kind of data that the app will access if they install it.

persistent

In terms of data, permanent storage.

persona

Fictional person, described in great detail; you design your app with this person in mind as the end user and all design decisions are made to address this person's use cases.

pipe

The vertical bar | character.

polymorphism

The ability of an object to take on multiple data types, all related by the super/sub class relationship.

primitive

A type of variable built into the Java language; for example, int, double, and boolean.

procedural abstraction

The paradigm of hiding multiple or complex steps in a procedure to make code readable and reusable.

prototype

A version of your final product that lacks some of the functionality of the final product; generally created quickly and used to test out design ideas without going through the whole product creation process.

pseudocode

A documentation style that is structured like a programming language but does not use the syntax of the language.

query

A request to retrieve data from a database.

query constraint

A condition that defines the criteria to be met when retrieving data from a database.

recursion

Recursion occurs when a method invokes a call to itself. Recursion is a natural choice when the task to be accomplished by the method can utilize "smaller versions" of the same task.

recursion base case

The case in which a recursive method does NOT include a recursive call. Every recursive method must have at least one base case. Also known as "stopping case".

recursion stack

A memory structure used by a computer system to keep track of recursive calls.

recursion stack frame

An allocated memory space in the recursion stack that holds the information associated with a recursive call.

render

Display graphical output to a screen.

return or return value

The value that a method passes back to the caller.

rollover

A common result of integer overflow when the most significant bit normally reserved for the sign (+ or –) of an integer is overwritten.

rounding algorithm

The technique that adds .5 and truncates the result; the result is a rounded integer.

row-major ordering

A convention for accessing data in 2-D structures; the first index indicates the row and the second indicates the column.

runtime error

An error that occurs while a program is executing.

scientific notation

The format of output when values get too small or too large to be reasonably displayed.

scope

The accessibility level of a variable that determines where it can be referenced and used within a program.

selection sort

A sort algorithm that repeatedly scans for the smallest item in the list and swaps it with the element at the current index. The index is then incremented, and the process repeats until the last two elements are sorted.

sequential programming

The style of writing code in a "top-down" format; statement execution occurs in order from the beginning to the end of the code.

sequential search

A search algorithm that scans through a list of items, one at a time, until it finds the target or until the list is exhausted. Also known as "linear search".

short circuit evaluation

A complex conditional expression where the subsequent condition(s) might not be executed.

Software Development Kit (SDK)

Software that is part of the Android™ Studio IDE that provides functionality, including user interface items such as buttons and textboxes.

State Diagram

A visual representation about the various conditions in which an object can exist.

static method

Static methods are defined in an object but do not require instance data. Therefore, they can be called directly with the class name, such as Math.random().

static variable

Also called a **class variable**, a static variable is a variable that is shared across all instances (objects) of the class. All instances have access to the value stored in the variable.

String

An object in Java made up of a sequence or string of characters.

subclass

A class derived or created from another class that is called a superclass or parent class. A subclass inherits or receives all functionality from its superclass.

superclass

The parent, more general class in a class hierarchy.

superclass

A class derived or created from another class that is called a superclass or parent class. A subclass inherits or receives all functionality from its superclass.

terminating condition

The condition or comparison that ends a loop, such as (x>0), which terminates when x becomes negative.

texture atlas

Data for a set of images that have been especially configured for use on in-game objects.

thread

A small set of instructions that are executing separately from and simultaneously to the main thread, or app.

token

An individual data item, usually part of a larger set.

touch event

The computational representation of a finger coming into contact with a screen.

UML

Unified Modeling Language: a way of visualizing the relationships between classes in a program.

unchecked exception

An exception that is not checked by the compiler, and therefore, a programmer maychooseto handle or manage these types of exceptions. Examples include null pointers and array index of bounds.

user authentication

The process of proving a user's identity on a computer system or software application.

variable

A place in memory that stores a value.

Waterfall development

A software development process where the steps are linear. One step has to be completed before the next one begins. This method usually takes longer to deliver a solution and does not involve the client after the problem is defined.

while loop

A way to iterate using a conditional statement that evaluates to true or false, such as (x >= 0).

whitespace

Blank or non-visible characters such as spaces, tabs and newlines.