Apex Code Cheat Sheet

Overview

Force.com Apex is a strongly-typed programming language that executes on the Force.com platform. Using Apex, you can add business logic to applications, write database triggers, and Visualforce controllers. Apex has a tight integration with the database and query language, web services, and email handling support. It also includes features such as asynchronous execution and support for testing.

Important Reserved Words

Keyword	Description	Example

abstract	Declares a class that contains abstract methods that only have their signature and no body defined. Can also define methods.	`public abstract class Foo {`
		`  protected void method1() { /*… */ }`
		`  abstract Integer abstractMethod();`
		`}`

break	Exits the entire loop	`while(reader.hasNext()) {`
		`  if (reader.getEventType() == END) {`
		`  break;`
		`  };`
		`  // process`
		`  reader.next();`
		`}`

catch	Identifies a block of code that can handle a particular type of exception	`try {`
		`  // Your code here`
		`} catch (ListException e) {`
		`  // List Exception handling code here`
		`}`

class	Defines a class	`private class Foo {`
		`  private Integer x;`
		`  public Integer getX() { return x; }`
		`}`

continue	Skips to the next iteration of the loop	`while (checkBoolean) {`
		`  if (condition)`
		`  {continue; }`
		`  // do some work`
		`}`

do	Defines a do-while loop that executes repeatedly while a Boolean condition remains true	`Integer count = 1;`
		`do {`
		`  System.debug(count);`
		`  count++;`
		`} while (count < 11);`

else	Defines the else portion of an if-else statement, that executes if the initial evaluation is untrue	`Integer x, sign;`
		`if (x==0) {`
		`  sign = 0;`
		`} else {`
		`  sign = 1;`
		`}`

enum	Defines an enumeration type on a finite set of values	`public enum Season {WINTER, SPRING, SUMMER, FALL};` `Season e = Season.WINTER;`

extends	Defines a class or interface that extends another class or interface	`public class MyException extends Exception {}`
		
		`try {`
		`  Integer i;`
		`  if (i < 5) throw new MyException();`
		`} catch (MyException e) {`
		`  // Your MyException handling code`
		`}`

false	Identifies an untrue value assigned to a Boolean	`Boolean isNotTrue = false;`

Important Reserved Words

Keyword	Description	Example

final	Defines constants and methods that can't be overridden	`public class myCls {`
		`  static final Integer INT_CONST;`
		`}`

finally	Identifies a block of code that is guaranteed to execute	`try {`
		`  // Your code here`
		`} catch (ListException e) {`
		`  // List Exception handling code`
		`} finally {`
		`  // will execute with or without`
		`  // exception`
		`}`

for	Defines a loop. The three types of for loops are: iteration using a variable, iteration over a list, and iteration over a query	`for (Integer i = 0, j = 0; i < 10; i++) {  System.debug(i+1);`
		`}`
		
		`Integer[] myInts = new Integer[]{1, 8, 9};`
		`for (Integer i : myInts) {`
		`  System.debug(i);`
		`}`
		
		`String s = 'Acme';`
		`for (Account a : [SELECT Id, Name, FROM account`
		`WHERE Name LIKE :(s+'%')]) {`
		`  // Your code`
		`}`

global	Defines a class, method, or variable that can be used by any Apex that has access to the class, not just the Apex in the same application.	`global class myClass {`
		`  webService static void`
		`  makeContact(String lastName) {`
		`  // do some work`
		`}`

if	Defines a condition, used to determine whether a code block should be executed	`Integer i = 1;`
		`if (i > 0) {`
		`  // do something;`
		`}`

implements	Declares a class or interface that implements an interface	`global class CreateTaskEmailExample implements Messaging.InboundEmailHandler {`
		`  global Messaging.InboundEmailResult handleInboundEmail(Messaging.inboundEmail email, Messaging.InboundEnvelope env){`
		`  // do some work, return value;`
		`}`
		
		`}`

instanceOf	Verifies at runtime whether an object is actually an instance of a particular class	`if (reports.get(0) instanceof CustomReport) {`
		`  // Can safely cast CustomReport c = (CustomReport) reports.get(0);`
		`} else {`
		`  // Do something with the non-custom-report.`
		`}`

interface	Defines a data type with method signatures. Classes implement interfaces. An interface can extend another interface.	`public interface PO {`
		`  public void doWork();`
		`}`
		`public class MyPO implements PO {`
		`  public override doWork() {`
		`  // actual implementation`
		`  }`
		`}`

Important Reserved Words

Keyword	Description	Example

new	Creates a new object, sObject, or collection instance	`Foo f = new Foo();`
		`MyObject__c mo =`
		`  new MyObject__c(Name= 'hello');`
		`List<Account> la = new`
		`List<Account>();`

null	Identifies a null constant that can be assigned to any variable	`Boolean b = null;`

override	Defines a method or property as overriding another defined as virtual in a class being extended or implemented	`public virtual class V {`
		`  public virtual void foo()`
		`{/*Does nothing*/}`
		`}`
		
		`public class RealV implements V {`
		`  public override void foo() {`
		`  // Do something real`
		`  }`
		`}`

private	Defines a class, method, or variable that is only known locally, within the section of code in which it is defined. This is the default scope for all methods and variables that do not have a scope defined	`public class OuterClass {`
		`// Only visible to methods and`
		`// statements within OuterClass`
		`  private static final Integer`
		`  MY_INT;`
		`}`

protected	Defines a method or variable that is visible to any inner classes in the defining Apex class	`public class Foo {`
		`public void quiteVisible();`
		`protected void lessVisible();`
		`}`

public	Defines a method or variable that can be used by any Apex in this application or namespace	`public class Foo {`
		`public void quiteVisible();`
		`private void almostInvisible();`
		`}`

return	Returns a value from a method	`public Integer meaningOfLife() {`
		`return 42;`
		`}`

static	Defines a method or variable that is only initialized once, and is associated with an (outer) class, and initialization code	`public class OuterClass {`
		`// Associated with instance`
		`public static final Integer`
		`  MY_INT;`
		
		`// Initialization code`
		`static {`
		`MY_INT = 10;`
		`}`
		`}`

super	Invokes a constructor on a superclass	`public class AnotherChildClass`
		`extends InnerClass {`
		`  AnotherChildClass(String s) {`
		`  super();`
		`  // different constructor, no`
		`  // args`
		`  }`
		`}`

testmethod	Defines a method as a unit test	`static testmethod void testFoo() {`
		`// some test logic`
		`}`

this	Represents the current instance of a class, or in constructor chaining	`public class Foo {`
		`public Foo(String s) { /* … */}`
		`public foo() {`
		`  this('memes repeat'); }`
		`}`

throw	Throws an exception, signaling that an error has occurred	`public class MyException extends`
		`  Exception {}`
		`try {`
		`Integer i;`
		`if (i < 5)`
		`  throw new MyException();`
		`} catch (MyException e) {`
		`  // Your MyException handling`
		`  // code here`
		`}`

transient	Declares instance variables that cannot be saved, and should not be transmitted as part of the view state, in Visualforce controllers and extensions	`transient integer currentValue;`

Important Reserved Words

Keyword	Description	Example

trigger	Defines a trigger on an sObject	`trigger myAccountTrigger on Account`
		`(before insert, before update) {`
		`if (Trigger.isBefore) {`
		`  for (Account a : Trigger.old) {`
		
		`  if (a.Name != 'okToDelete') {`
		`  a.addError(`
		`  'You can\'t delete this record!');`
		`  }`
		`}`
		`}`

true	Identifies a true value assigned to a Boolean	`Boolean mustIterate = true;`

try	Identifies a block of code in which an exception can occur	`try {`
		`  // Your code here`
		
		`} catch (ListException e) {`
		`  // List Exception handling code`
		`  // here`
		`}`

webService	Defines a static method that is exposed as a Web service method that can be called by external client applications. Web service methods can only be defined in a global class.	`global class MyWebService {`
		`webService static Id makeContact(`
		`  String lastName, Account a) {`
		
		`  Contact c = new Contact(`
		`  LastName = 'Weissman',`
		`  AccountId = a.Id);`
		`  insert c;`
		`  return c.Id;`
		`  }`
		`}`

while	Executes a block of code repeatedly as long as a particular Boolean condition remains true	`Integer count=1;`
		`while (count < 11) {`
		`  System.debug(count);`
		`  count++;`
		`}`

with sharing	Enforces sharing rules that apply to the current user. If absent, code is run under default system context.	`public with sharing class`
		`sharingClass {`
		`// Code will enforce current user's`
		`// sharing rules`
		`}`

without sharing	Ensures that the sharing rules of the current user are not enforced	`public without sharing class`
		`noSharing {`
		`// Code won't enforce current`
		`user's`
		`// sharing rules`
		`}`

virtual	Defines a class or method that allows extension and overrides. You can't override a method with the `override` keyword unless the class or method has been defined as `virtual`.	`public virtual class MyException`
		`extends Exception {`
		`  // Exception class member`
		`  // variable`
		`  public Double d;`
		
		`  // Exception class constructor`
		`  MyException(Double d) {`
		`  this.d = d;`
		`  }`
		
		`  // Exception class method`
		`  protected void doIt() {}`
		`}`

Annotations

Annotation	Description	Example

@future	Denotes methods that are executed asynchronously	`global class MyFutureClass {`
		`@future`
		`static void myMethod(`
		`  String a, Integer i) {`
		`  System.debug(`
		`  'Method called with: ' + a +`
		`  ' and ' + i);`
		`  // do callout, other long`
		`  // running code`
		`  }`
		`}`

Annotations

Annotation	Description	Example
@isTest	Denotes classes that only contain code used for testing your application. These classes don't count against the total amount of Apex used by your organization.	`@isTest private class MyTest { // Methods for testing }`
@isTest(OnInstall=true)	Denotes a test class or test method that executes on package installation	`@isTest(OnInstall=true) private class TestClass { }`
@isTest(SeeAllData=true)	Denotes a test class or test method that has access to all data in the organization including pre-existing data that the test didn't create. The default is false.	`@isTest(SeeAllData=true) private class TestClass { }`
@deprecated	Denotes methods, classes, exceptions, enums, interfaces, or variables that can no longer be referenced in subsequent releases of the managed package in which they reside	`@deprecated public void limitedShelfLife() { }`
@readOnly	Denotes methods that can perform queries unrestricted by the number of returned rows limit for a request	`@readOnly private void doQuery() { }`
@remoteAction	Denotes Apex controller methods that JavaScript code can call from a Visualforce page via JavaScript remoting. The method must be static and either public or global.	`@remoteAction global static String getId( String s) { }`
@restResource	Denotes a class that is available as a REST resource. The class must be global. The urlMapping parameter is your resource's name and is relative to https://instance.salesforce.com/services/apexrest/.	`@restResource(urlMapping= '/Widget/*') global with sharing class MyResource() { }`

@httpGet, @httpPost, @httpPatch, @httpPut, @httpDelete	Denotes a REST method in a class annotated with @restResource that the runtime invokes when a client sends an HTTP `GET`, `POST`, `PATCH`, `PUT`, or `DELETE` respectively.
	
	The methods defined with any of these annotations must be global and static.
		`@httpGet global static MyWidget__c doGet() { }`
		
		`@httpPost global static void doPost() { }`
		
		`@httpDelete global static void doDelete() { }`

Primitive Types

Type	Description	Example
Blob	Binary data stored as a single object	`Blob myBlob = Blob.valueof('idea');`
Boolean	Value that can only be assigned true, false, or null	`Boolean isWinner = true;`
Date	Particular day	`Date myDate = Date.today(); Date weekStart = myDate.toStartofWeek();`
Datetime	Particular day and time	`Datetime myDateTime = Datetime.now(); Datetime newd = myDateTime. addMonths(2);`

Primitive Types

Type	Description	Example
Decimal	Number that includes a decimal point. Decimal is an arbitrary precision number.	`Decimal myDecimal = 12.4567; Decimal divDec = myDecimal. divide (7, 2, System.RoundingMode.UP); system.assertEquals(divDec, 1.78);`
Double	64-bit number that includes a decimal point. Minimum value -2^{63}. Maximum value of $2^{63}-1$	`Double d=3.14159;`
ID	18-character Force.com record identifier	`ID id='00300000003T2PGAA0';`
Integer	32-bit number that doesn't include a decimal point. Minimum value -2,147,483,648 — maximum value of 2,147,483,647	`Integer i = 1;`
Long	64-bit number that doesn't include a decimal point. Minimum value of -2^{63} — maximum value of $2^{63}-1$.	`Long l = 2147483648L;`
String	Set of characters surrounded by single quotes	`String s = 'repeating memes';`
Time	Particular time	`Time myTime = Time.newInstance(18, 30, 2, 20); Integer myMinutes = myTime. minute();`

Collection Types

List	Ordered collection of typed primitives, sObjects, objects, or collections that are distinguished by their indices	`// Create an empty list of String List<String> my_list = new List<String>(); My_list.add('hi'); String x = my_list.get(0);`
		
		`// Create list of records from a query List<Account> accs = [SELECT Id, Name FROM Account LIMIT 1000];`

Map	Collection of key-value pairs where each unique key maps to a single value. Keys can be any primitive data type, while values can be a primitive, sObject, collection type, or an object.	`Map<String, String> mys = new Map<String, String>(); Map<String, String> mys = new Map<String, String>{'a' => 'b', 'c' => 'd'. toUpperCase()};`
		
		`Account myAcct = new Account(); Map<Integer, Account> m = new Map<Integer, Account>(); m.put(1, myAcct);`

Set	Unordered collection that doesn't contain any duplicate elements.	`Set<Integer> s = new Set<Integer>(); s.add(12); s.add(12); System.assert(s.size()==1);`

Trigger Context Variables

Variable	Operators
`isExecuting`	Returns true if the current context for the Apex code is a trigger only
`isInsert`	Returns true if this trigger was fired due to an insert operation
`isUpdate`	Returns true if this trigger was fired due to an update operation
`isDelete`	Returns true if this trigger was fired due to a delete operation
`isBefore`	Returns true if this trigger was fired before any record was saved
`isAfter`	Returns true if this trigger was fired after all records were saved
`isUndelete`	Returns true if this trigger was fired after a record is recovered from the Recycle Bin
`new`	Returns a list of the new versions of the sObject records. (Only in `insert` and `update` triggers, and the records can only be modified in `before` triggers.)
`newMap`	A map of IDs to the new versions of the sObject records. (Only available in `before update`, `after insert`, and `after update` triggers.)
`old`	Returns a list of the old versions of the sObject records. (Only available in `update` and `delete` triggers.)

Trigger Context Variables

Variable	Operators
`oldMap`	A map of IDs to the old versions of the sObject records. (Only available in `update` and `delete` triggers.)
`size`	The total number of records in a trigger invocation, both old and new.

Apex Data Manipulation Language (DML) Operations

Keyword	Description	Example
insert	Adds one or more records	`Lead l = new Lead(Company='ABC', LastName='Smith'); insert l;`
delete	Deletes one or more records	`Account[] doomedAccts = [SELECT Id, Name FROM Account WHERE Name = 'DotCom']; try { delete doomedAccts; } catch (DmlException e) { // Process exception here }`
merge	Merges up to three records of the same type into one of the records, deleting the others, and re-parenting any related records	`List<Account> ls = new List<Account>{ new Account(Name='Acme Inc.'), new Account(Name='Acme')}; insert ls; Account masterAcct = [SELECT Id, Name FROM Account WHERE Name = 'Acme Inc.' LIMIT 1]; Account mergeAcct = [SELECT Id, Name FROM Account WHERE Name = 'Acme' LIMIT 1]; try { merge masterAcct mergeAcct; } catch (DmlException e) { }`
undelete	Restores one or more records from the Recycle Bin	`Account[] savedAccts = [SELECT Id, Name FROM Account WHERE Name = 'Trump' ALL ROWS]; try { undelete savedAccts; } catch (DmlException e) { }`
update	Modifies one or more existing records	`Account a = new Account(Name='Acme2'); insert(a); Account myAcct = [SELECT Id, Name, BillingCity FROM Account WHERE Name = 'Acme2' LIMIT 1]; myAcct.BillingCity = 'San Francisco'; try { update myAcct; } catch (DmlException e) { }`
upsert	Creates new records and updates existing records	`Account[] acctsList = [SELECT Id, Name, BillingCity FROM Account WHERE BillingCity = 'Bombay']; for (Account a : acctsList) {a.BillingCity = 'Mumbai';} Account newAcct = new Account(Name = 'Acme', BillingCity = 'San Francisco'); acctsList.add(newAcct); try { upsert acctsList; } catch (DmlException e) { }`

Standard Interfaces (Subset)

Database.Batchable

```
global (Database.QueryLocator | Iterable<sObject>)
  start(Database.BatchableContext bc) {}
global void execute(Database.BatchableContext BC, list<P>){}
global void finish(Database.BatchableContext BC){}
```

Schedulable

```
global void execute(ScheduleableContext SC) {}
```

Messaging.InboundEmailHandler

```
global Messaging.InboundEmailResult handleInboundEmail(Messaging.
inboundEmail email, Messaging.InboundEnvelope env){}
```

Comparable

```
global Integer compareTo(Object compareTo) {}
```

Standard Classes and Methods (Subset)

System

```
abortJob          assert                 assertEquals
assertNotEquals   currentPageReference   currentTimeMillis
debug             isRunningTest          now
process           resetPassword          runAs
schedule          setPassword            submit              today
```

Math

```
abs      acos     asin     atan     atan2    cbrt     ceil
cos      cosh     exp      floor    log      log10    max
min      mod      pow      random   rint     round    roundToLong
signum   sin      sinh     sqrt     tan      tanh
```

Describe

```
fields                    fieldSets                 getChildRelationships
getKeyPrefix              getLabel                  getLabelPlural
getLocalName              getName                   getRecordTypeInfos
getRecordTypeInfosByID                              getSobjectType
isAccessible              getRecordTypeInfosByName
isCreateable              isCustom                  isCustomSetting
isDeletable               isDeprecatedAndHidden     isFeedEnabled
isMergeable               isQueryable               isSearchable
isUndeletable             isUpdateable
Schema.RecordTypeInfo rtByName =  rtMapByName.get(rt.name);
Schema.DescribeSObjectResult d = Schema.SObjectType.Account;
```

DescribeFieldResult

```
getByteLength             getCalculatedFormula      getController
getDefaultValue           getDefaultValueFormula    getDigits
getInlineHelpText         getLabel                  getLength
getLocalName              getName                   getPicklistValues
getPrecision              getReferenceTo            getRelationshipName
getRelationshipOrder      getScale                  getSOAPType
getSObjectField           getType                   isAccessible
isAutoNumber              isCalculated              isCaseSensitive
isCreateable              isCustom                  isDefaultedOnCreate
isDependantPicklist       isDeprecatedAndHidden     isExternalID
isFilterable              isGroupable               isHtmlFormatted
isIdLookup                isNameField               isNamePointing
isNillable                isPermissionable          isRestrictedDelete
isRestrictedPicklist      isSortable                isUnique
isUpdateable              isWriteRequiresMasterRead
Schema.DescribeFieldResult f = Schema.SObjectType.Account.fields.Name;
```

LoggingLevel

```
ERROR     WARN     INFO     DEBUG     FINE     FINER     FINEST
```

```
getAggregateQueries                    getLimitAggregateQueries
getCallouts                            getLimitCallouts
getChildRelationshipsDescribes         getDMLRows
getLimitChildRelationshipsDescribes    getLimitDMLRows
getCPUTime                             getLimitCPUTime
getDMLRows                             getLimitDMLRows
getDMLStatements                       getLimitDMLStatements
getEmailInvocations                    getLimitEmailInvocations
getFieldsDescribes                     getLimitFieldsDescribes
getFindSimilarCalls                    getLimitFindSimilarCalls
getFutureCalls                         getLimitFutureCalls
getHeapSize                            getLimitHeapSize
getPicklistDescribes                   getLimitPicklistDescribes
getQueries                             getLimitQueries
getQueryLocatorRows                    getLimitQueryLocatorRows
getQueryRows                           getLimitQueryRows
getRecordTypesDescribes                getLimitRecordTypesDescribes
getRunAs                               getLimitRunAs
getSavepointRollbacks                  getLimitSavepointRollbacks
getSavepoints                          getLimitSavepoints
getScriptStatements                    getLimitScriptStatements
getSoslQueries                         getLimitSoslQueries
```

UserInfo

```
getDefaultCurrency        getFirstName              getLanguage
getLastName               getLocale                 getName
getOrganizationId         getOrganizationName       getProfileId
getSessionId              getUITheme                getUIThemeDisplayed
IsMultiCurrencyOrganization
String result = UserInfo.getLocale();
System.assertEquals('en_US', result);
```