

“Cloud Computing in the European schools”



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“Introduction to IDEs on the Cloud”



{ cloud } Codenvy



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Disclaimer



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Objective

Integrated Development Environments (IDEs) offer the perfect tool for the development team of an application: analysis, design, coding, testing, documentation can be done through these environments. Traditionally we have used desktop environments, such as Eclipse or Netbeans. This activity will allow us to know environments on the cloud, in the first place, and to explore Eclipse Che, which becomes a reference for IDEs on the cloud. The activity is an introduction to Eclipse Che that allows us to know its main components for the development of projects in different programming languages.

Exercise 1.- Solutions comparative

Make a study of IDEs in the cloud. The information we want to obtain is for each solution is:

1. Name of the IDE.
2. Website.
3. Type of license. Prices.
4. Main characteristics.
5. Bibliography consulted indicating: title - URL - comments of the group

Exercise 2.- Eclipse Che: characteristics and scenarios

Explore the features of Eclipse Che and the possible ways to use it.

For the realization of this Exercise you can consult the following documentation:

1. Eclipse Che, an IDE and next-generation work area in the cloud
<https://ubunlog.com/eclipse-che-ide-area-trabajo-proxima-generacion-la-nube/>
2. Eclipse Che is a new cloud-based IDE that tries to reinvent collaborative work.
<https://www.genbeta.com/herramientas/eclipse-che-es-un-nuevo-ide-basado-en-la-nube-para-que-puedas-trabajar-desde-cualquier-sitio>
3. Characteristics of Eclipse Che on the official website:
<https://www.eclipse.org/che/features/>
4. Official documentation of Eclipse Che. Introduction to Eclipse Che.
<https://www.eclipse.org/che/docs/>
5. Eclipse Next-Generation IDE. <http://www.eclipse.org/che/>

Exercise 3.- Eclipse Che: resources and pricing

Explore the features of Eclipse Che in its SaaS version:

1. Amount of free RAM that they offer us.
2. Money to have more memory.
3. Development / execution environments possible.

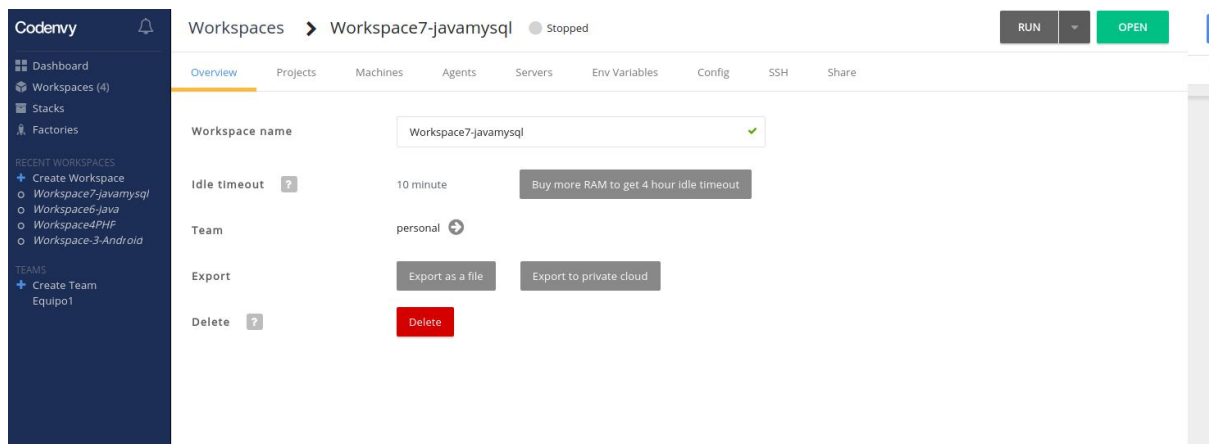
Exercise 4.- Eclipse Che: creation of an account

Create an account in Codenvy.io to access Eclipse Che in the cloud (SaaS version) (<https://www.eclipse.org/che/>).

Exercise 5.- Eclipse Che: exploring the environment

Before starting to create projects we are going to know some of its elements:

1. Workspaces. Explore and manage the workspaces by analyzing the configuration options: delete workspaces, view the projects of a workspace, view the workspace machines, view the agents (exec, php, ssh, terminal ...), view the services (web server, ssh server) , server https ...), add environment variables, access the workspace configuration (file with directives), add other developers.





- Stacks. Explore the stacks: definition of stack, list of predetermined stacks, exploration of a stack to observe its fields, creation of a stack, test the stack.

The screenshot shows the Codenvy 'Stacks' page. At the top, there's a header with 'Codenvy' and a notification bell. Below the header, there's a navigation sidebar on the left with options like 'Dashboard', 'Workspaces (4)', 'Stacks', and 'Factories'. The main content area is titled 'Stacks' and contains a sub-header: 'A stack is environment configuration for workspace defined by its runtime recipe. Create workspaces from stacks that define projects, runtimes and commands. Learn more.' Below this, there are two buttons: 'Add Stack' and 'Build Stack From Recipe', and a search bar. The main part of the page is a table with the following columns: NAME, DESCRIPTION, COMPONENTS, and ACTIONS. The table lists various stacks such as .NET, Android, Blank, C++, CentOS WildFly Swarm, Debian, Debian LSP, Eclipse Vert.x, Go, Hadoop, Java, Java CentOS, and Java Debian.

NAME	DESCRIPTION	COMPONENTS	ACTIONS
.NET	Default .NET Stack with .NET Core SDK	Ubuntu, .NET Core SDK	[trash] [refresh]
Android	Default Android Stack with Java 1.8, Maven 3.2.3, Androi...	Android, Java, Maven	[trash] [refresh]
Blank	Default Blank Stack.		[trash] [refresh]
C++	Default C++ Stack with C++, gcc 4.8.4, GNU Make 3.81.	CPP, gcc, Make	[trash] [refresh]
CentOS WildFly Swarm	Eclipse WildFly Swarm Stack on CentOS.	CentOS, JDK, Maven	[trash] [refresh]
Debian	Simple stack with Debian (Jessie).	Debian	[trash] [refresh]
Debian LSP	Simple stack with Debian (Jessie) to test LSP	Debian	[trash] [refresh]
Eclipse Vert.x	Eclipse Vert.x Stack on CentOS.	CentOS, JDK, Maven	[trash] [refresh]
Go	Default Go Stack with Go 1.6.2	Ubuntu, Go	[trash] [refresh]
Hadoop	Default Hadoop Stack with JDK 8, Maven and Tomcat.	JDK, Maven, Tomcat, Hadoop	[trash] [refresh]
Java	Default Java Stack with JDK 8, Maven and Tomcat.	JDK, Maven, Tomcat	[trash] [refresh]
Java CentOS	Java JDK Stack on CentOS.	CentOS, JDK, Maven, Tomcat	[trash] [refresh]
Java Debian	Java JDK Stack on Debian.	Debian, JDK, Maven, Tomcat	[trash] [refresh]

Exercise 6.- Eclipse Che: creating our first project

It was time to create our first project. We are going to perform 2 exercises:

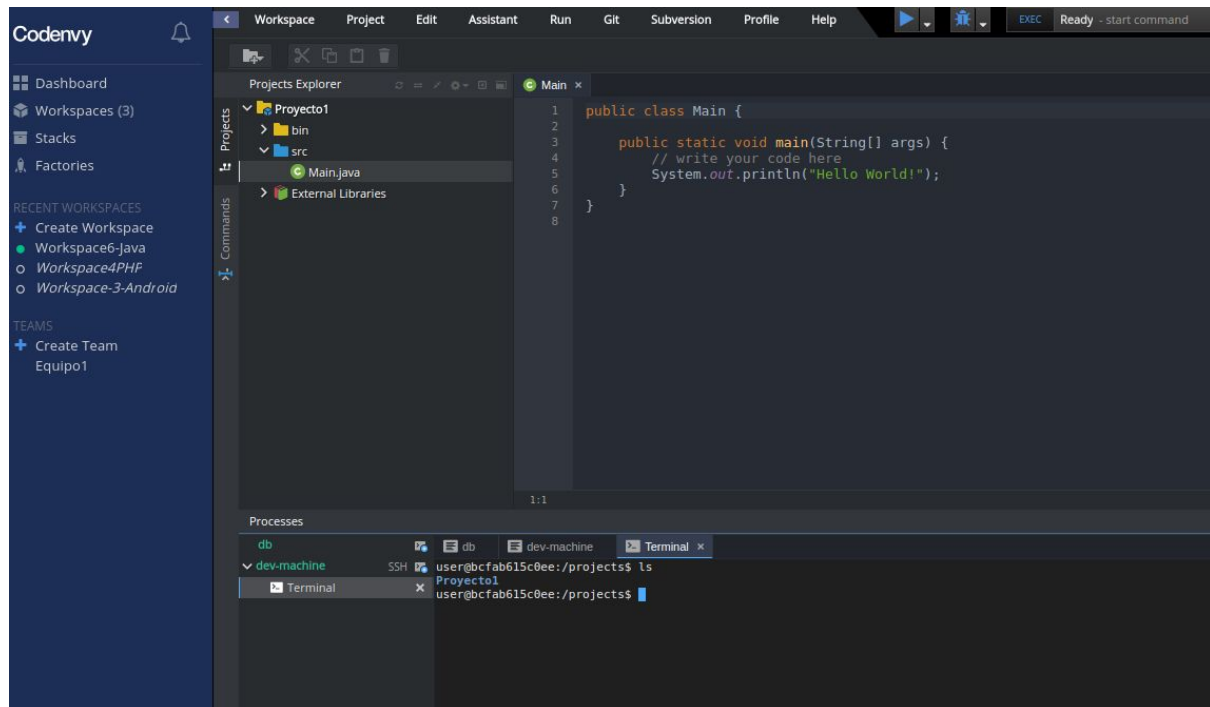
1. Project in Java
2. Project in PHP

To do it, the first thing you should do is create two workspace with the necessary stack (with Java, on the one hand, and PHP on the other).

For each workspace you must create a project which will contain a single file: the class Main.java and prueba.php; in both cases when executing it, the message "Hello world" is displayed.

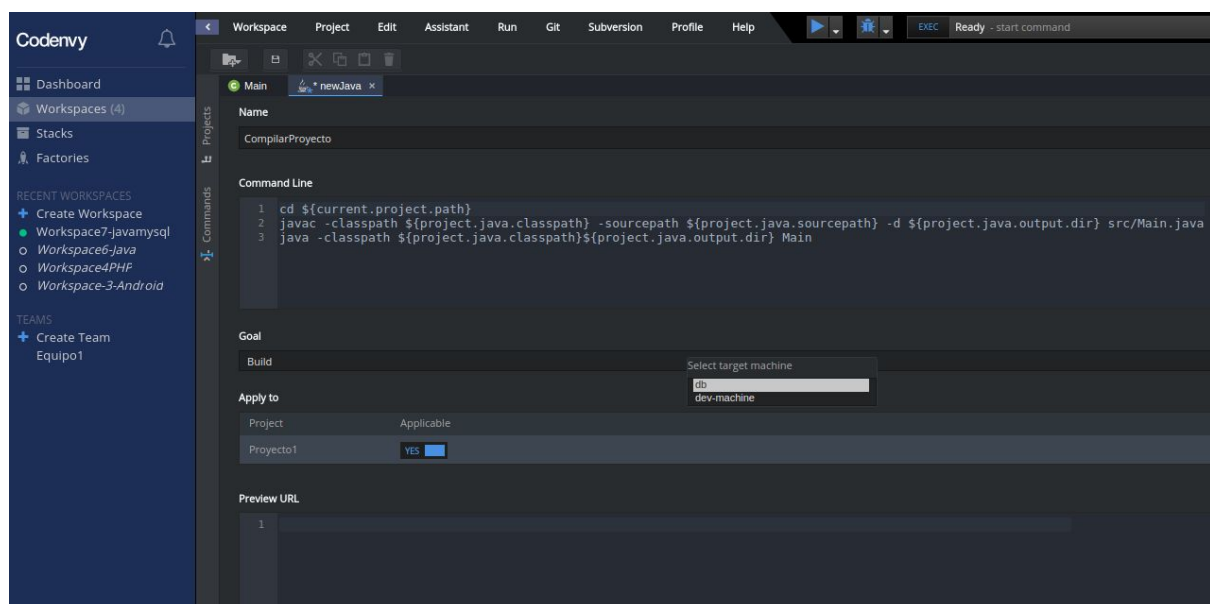
Java

We create the project "Project1".



We create a BUILD command and rename it to "CompilarProecto". We observe the content of the BUILD command that will allow us to obtain the binary:

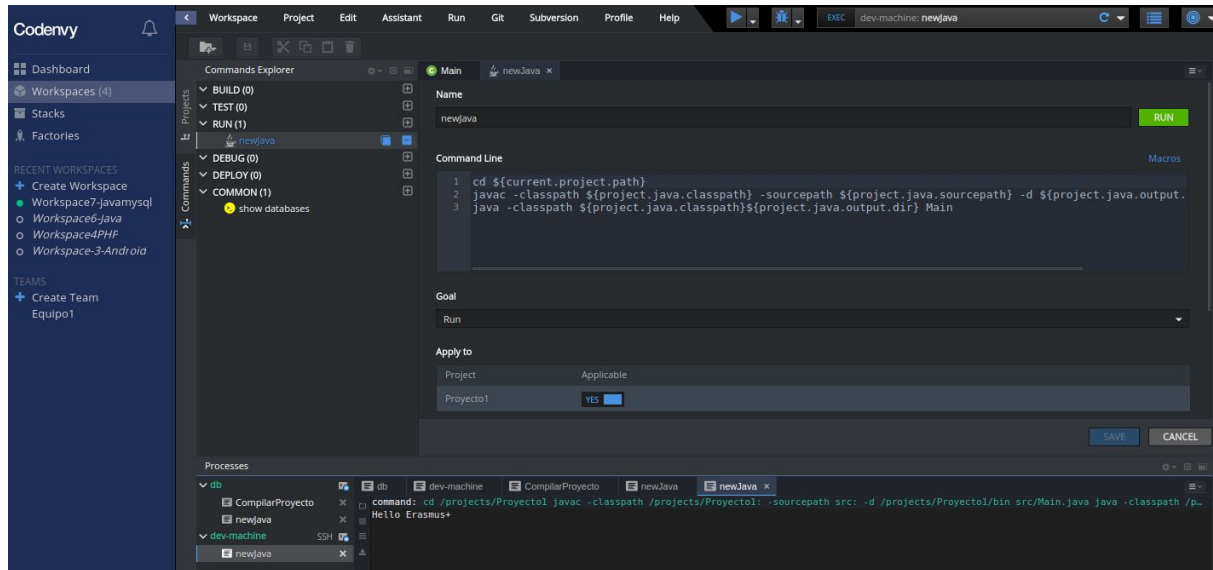
- `cd ${current.project.path}`
- `javac -classpath ${project.java.classpath} -sourcepath ${project.java.sourcepath} -d ${project.java.output.dir} src/Main.java`
- `java -classpath ${project.java.classpath}${project.java.output.dir} Main`



By clicking on Run, we can check that the message we expect from our application

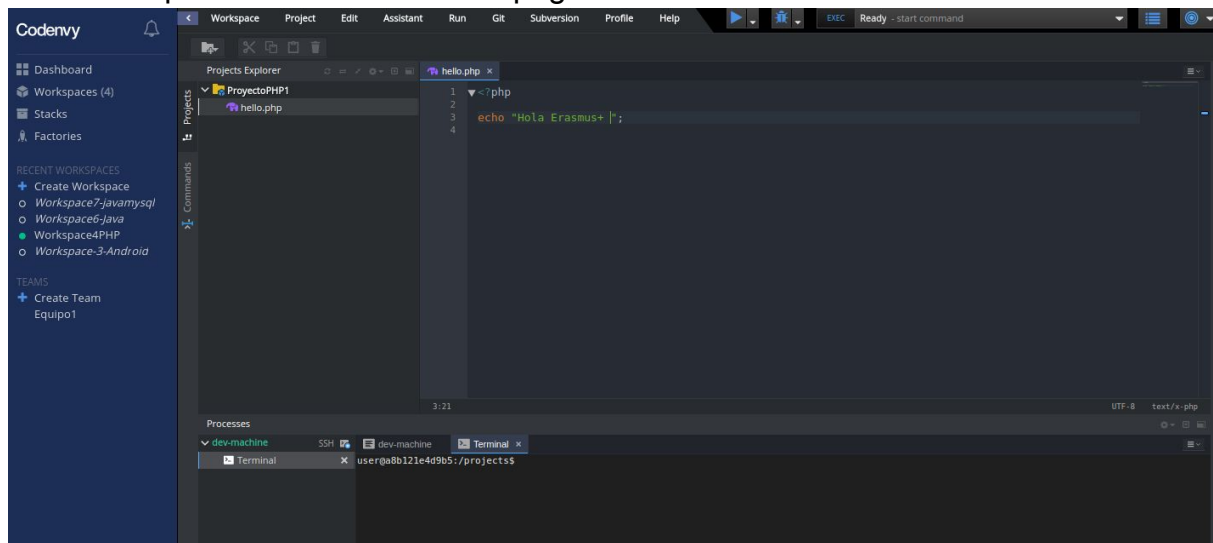


is displayed:

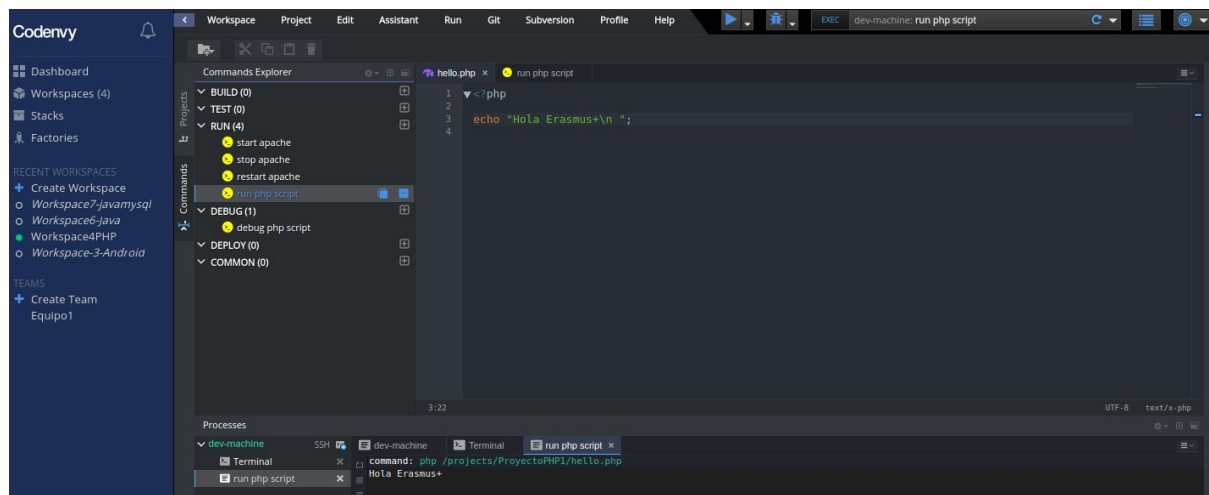


PHP

The process to create a web page is similar.



The command to run is “run php script”.



Work methodology

1. Collaborative team work.
2. The class will be distributed in groups and each group should investigate and document the work done (all Exercise).
3. You must prepare 4 multiple choice multiple choice questions with one or more correct answers for each of Exercises 1, 2 and 3.

Documentation and exhibition

- **Only delivery** for each group.
- The documentation must be uploaded to the **Google Sites** of the IT Department. Permission will be given to only one member of each team to upload the contents.
- Students who have been selected for mobility must submit the documentation in **English**.
- **All the groups will present** the activity in class making use of their document.
- **Students selected for mobility to Greece must prepare a 1-hour workshop** to teach the rest of the students from the other participating centers. The objective of the workshop is that attendees learn the most



theoretical aspects of IDEs in the cloud as well as create the projects indicated in the activity. The generated documentation must be oriented for this **workshop**. Suggestion: use tools such as Google Form to gather information or Kahoot to prepare interactive questions. The creativity of the presented workshop will be valued.

Mark

This activity is part of the Erasmus + project "Cloud Computing in the European schools". All students must complete it. An increase of up to 1 point will be applied in the final mark of the professional module where it is given, provided that the grade obtained in the evaluation of the associated learning results is equal to or greater than 5.

Evaluation criteria evaluated

The activity will serve as an improvement / recovery of the following criteria (in addition to that indicated in the previous section):

2.a: Development environments, owners and free have been installed.

2.e. Executables have been generated from source code of different languages in the same development environment