BEST PRACTICES FROM EDUBOTS

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- **Target group:** University students
- **Type of program:** in-person program
- **Discipline:** Engineering and Technology
- **Language availability:** Spanish
- **Solution:** Telegram and Telegram bots

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Use case:

A collection of Telegram bots for managing university courses

Short description:

A chat group with students and their teacher/s for a specific course. The nature of the chat group is limited to the course and interaction is required for administrative tasks (e.g. creating student groups or attendance), practical information (e.g deadlines for assignments), automatically answering FAQs, self assessment (e.g. as a student, knowing my progress in the course)

Need/ added value:

Students in Engineering and Technology are already familiar with instant messaging applications such as Telegram. This fosters communication between students e.g. answering questions about a course, and also with their educators. Moreover, the messaging app natively integrates bots for the chat groups that are easily customized for educational purposes. These bots can be used for automatically answering FAQs allowing educators to focus on helping students with their learning process, creating assistance records for the in-person sessions (very helpful for COVID-19 contact tracing), create polls and retrieve results, or self-assess the progress of the class in a project-based course.

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Educator Preparation:

Telegram is a widely used instant messaging app that has a friendly interface. Creating a chat group and using tools such as polls is a very simple task that does not require any specific preparation. Also, users decide if they want to use their mobile phone number or just a nickname to join the group, inherently protecting private data. Customizing a bot and adding it to a chat group does not need additional training either. However, creating one from scratch and deploying it does require training on ICT although it allows the educator to create a more flexible aim-driven chatbot.

How to get started:

First, educators need to create a chat group for their class in their Telegram app. The course group is accessed via mobile app, a desktop application, or the web browser. After that, educators share a link to join the group. Students are free to join with their personal account or just create a specific account for the course. Educators look for bots to help them with their courses among those already deployable in Telegram.

How to engage your students:

Students use an app that is already very popular in their field. Also, the Telegram bots are able to work 24/7 answering their questions and interacting with them enabling synchronous communication, a desirable feature during study hours or virtual teaching.

For example:

- *A bot that sets reminders for deadlines (AlertBot);*
- *A bot that helps with administrative tasks such as providing information such as class hours, next assignments, teachers contact information, or exam dates (Delega_Bot, developed by a former student of Univ. Granada) ;*
- *A bot that moderates the chat group (Ban Hammer).*

Next, educators may need customized versions for their courses. Manybot is a helpful bot that step-by-step guides the user to create their own bot with buttons. This option is the best fit for FAQ bots. The bot itself contains tutorials to help users create their own chatbot. Finally, educators with more technical skills can also code and deploy their own chatbots using the Telegram API (documentation available in [1,2]). Once found or created, new chatbots are to be added to the chat groups by simply clicking on “Add to Group” and selecting the chat group name.

[1] Bot Telegram code examples:
https://core.telegram.org/bots/samples

[2] Python Telegram’s bot documentation
https://python-telegram-bot.readthedocs.io/en/stable/

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What happens next:

Educators are able to summarize data about attendance, answers to polls, or present graphical data results regarding e.g. student progress. Also, teachers are able to focus on the teaching material rather than answering repetitive questions about evaluation or practical information about the course.

Tips

- *Make students understand the value of asking and interacting with other students to solve their problems, fostering learning by teaching others.*
- *Stay online at least during a fixed number of hours to take advantage of synchronous interaction*
- *Use polls to receive feedback from students about their problems during learning to improve the course materials or pinpoint key issues to focus on them*

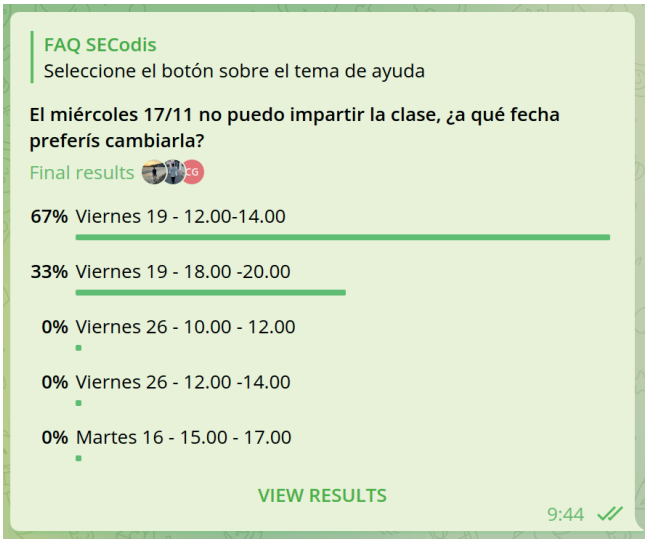
Pros

- *Telegram enables fully-customized bots for specific-purpose learning objectives. Open-source solutions take advantage of community developments and guarantee security.*
- *Familiarity encourages students to use it and to interact with their teachers in a synchronous way*

Examples from real classroom applications

Figure 1.

Results of a poll about the best date to teach a seminar and results from the students (the prefered choice is Friday 19, from 12.00 am to 2.00 pm)



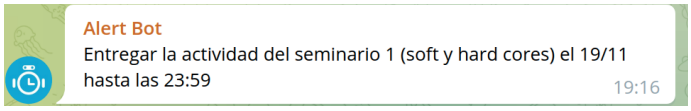
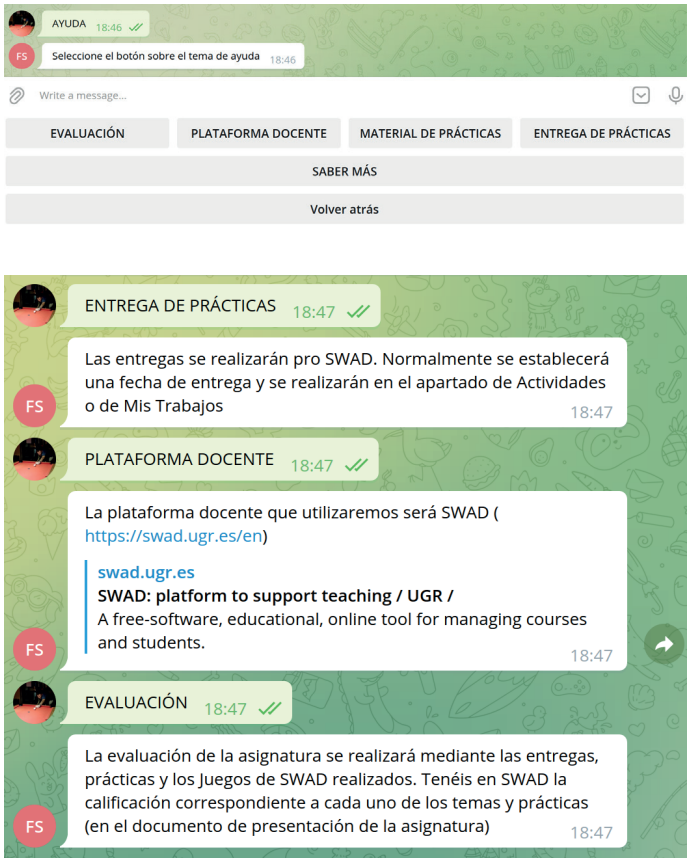


Figure 2.

Alert Bot chat reminds students that the final deadline for submitting their electronics assignment (about “soft and hard cores”) is at the end of the day, November 19.

Figure 3.

FAQ SED chatbot, shows a menu with buttons that every student interacts with and it is visible only for them (top capture). The bot replies to different common questions about practical details (bottom capture) such as how to submit their practical lab assignments (via SWAD, an institutional LMS system in Univ. Granada in our case), or how the evaluation will be (in this case, the sum of different assignments plus tests that students are to take using our LMS tool).



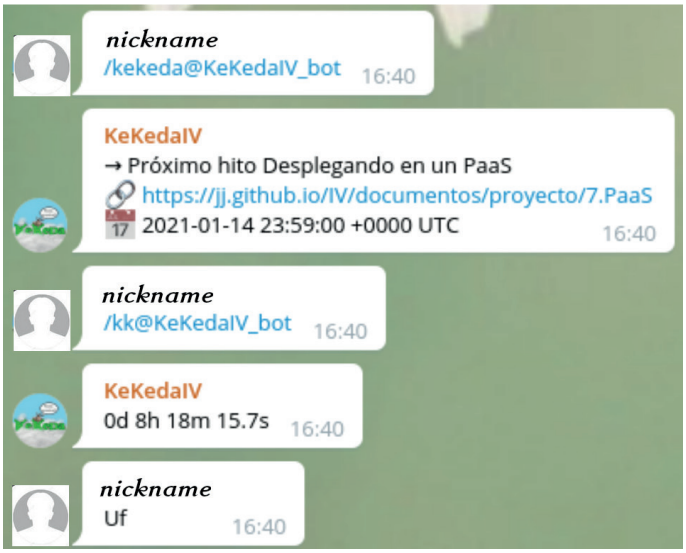


Figure 4.
KeKeda bot automatically responds to users about the time left (8 days and 8 hours in this case) to submit their assignment (in this case called Milestone Deploying in a PaaS). This bot is a fully-customized example that needs to be coded and customized.

Figure 5.
ÁgilDataBot: Right, the bot records students checking-in; right below) some of the graphic analytics including showing class assistance and the advance of the learn-