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Introduction to Python Programming Language for Students at Mtsn 4 Pandeglang School

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ABSTRACT

The Industrial Era 4.0 brings Indonesians to a technological mindset that covers various aspects of life. Technology is now reopened to luxury things so that people cannot be separated from the rise of technological facilities. In preparation for entering the industrial era 5.0, there is no doubt that information retrieval is strongly supported and facilitated by various technology-based devices and applications. Information that is currently an important basic material in forming concrete data makes information important in various aspects of life. Based on the saying "don't know then don't love" will bring every human being will continue to need the information used to recognize something so that it can more quickly adapt and easily accept the positive things that exist. For this reason, there are computer-based applications made using certain programming language coding as a tool that can help humans in finding things that can be information for them. In response to this, where there are still many people who are not familiar with coding, especially school-age children, I intend to help one of the current government programs, namely helping programs that bring people more familiar with coding, especially at school age.

PRECEDENCE

The Industrial Era 4.0, brings the Indonesian people to a technological mindset that covers various aspects of life. Technology today is no longer a new thing for people whose lives cannot be separated from the rise of technology facilities such as computers, gadgets, and the internet. The current era has reached the industrial era 5.0 which processes and presents data and information, so information search is also strongly supported and facilitated by various devices and applications of technology-based systems. Information that is currently an important product as a result of processing concrete data makes information important also in various aspects of life. For this reason, the existence of a computer-based application made using the coding of certain programming languages as a tool that can help humans in looking for things that can be information for them.

Perhaps many people do not know how important it is to master coding and programming as a student. Regarding that, Samsung Electronics Indonesia said, that students also need to master coding and programming. This is certainly not without reason, the goal is for students to have individual qualities that can increase students chances of having individual qualities that can increase their opportunities, when entering the world of work, especially in the field of technology. The main reason for the importance of mastering coding and programming for students is to train their ability to solve problems. Through its statement, Samsung said the main reason for the importance of mastering coding and programming for students is to train the ability to solve problems. Understanding computers as well as learning the basics of coding can help students to appreciate how things work. In addition, students can also learn

how to solve problems logically, when the methods they use do not work. The second benefit is that it can build students' resilience in facing challenges. Because in implementing coding as well as programming, several failure processes must be passed. From there, students can learn about how to develop their abilities, improve what they do without worry, and achieve the results they want. The third benefit, of coding and programming, is that students are not afraid to experiment, and are more confident to make something creative, taking the opportunity to design and create something that may later be useful for the student and those around him. Then, the next benefit is that it can help students learn science, technology, engineering, and mathematics (STEM) with fun. Furthermore, learning to create programs and codes, involves many skills, including organizing and analyzing data as well as mathematics. Using logic and numeracy skills while creating one, makes STEM more interesting and fun for students. In addition, the benefits of coding and subsequent programming are increased job opportunities in the future. Because in the future there will be more and more businesses relying on computer codes. In this case, it is not only in the technology sector but also in the financial sector, retail, and so on.

Talking about programming languages, maybe there are currently many programming languages in the world, for example, there are C++, C, JavaScript, HTML, PYTHON, PHP, VISUAL BASIC, ActionScript, and many more. However, in this study, researchers will only focus on one programming language, namely the PYTHON programming language, not without reason, researchers chose the python programming language as the subject of research this time there are several aspects of why the python programming language was chosen in this study. At the level of programming languages, Python belongs to a high-level language. Python is one of the programming languages that can build applications, be it web-based or mobile-based. This python language is included in the programming language which is quite easy for beginners because the language is easy to read with a syntax that is easy to understand as well. Many large companies use Python in their development such as Instagram, Pinterest, and Rdio. Python is also used by the developers of Google, Yahoo!, and also NASA.

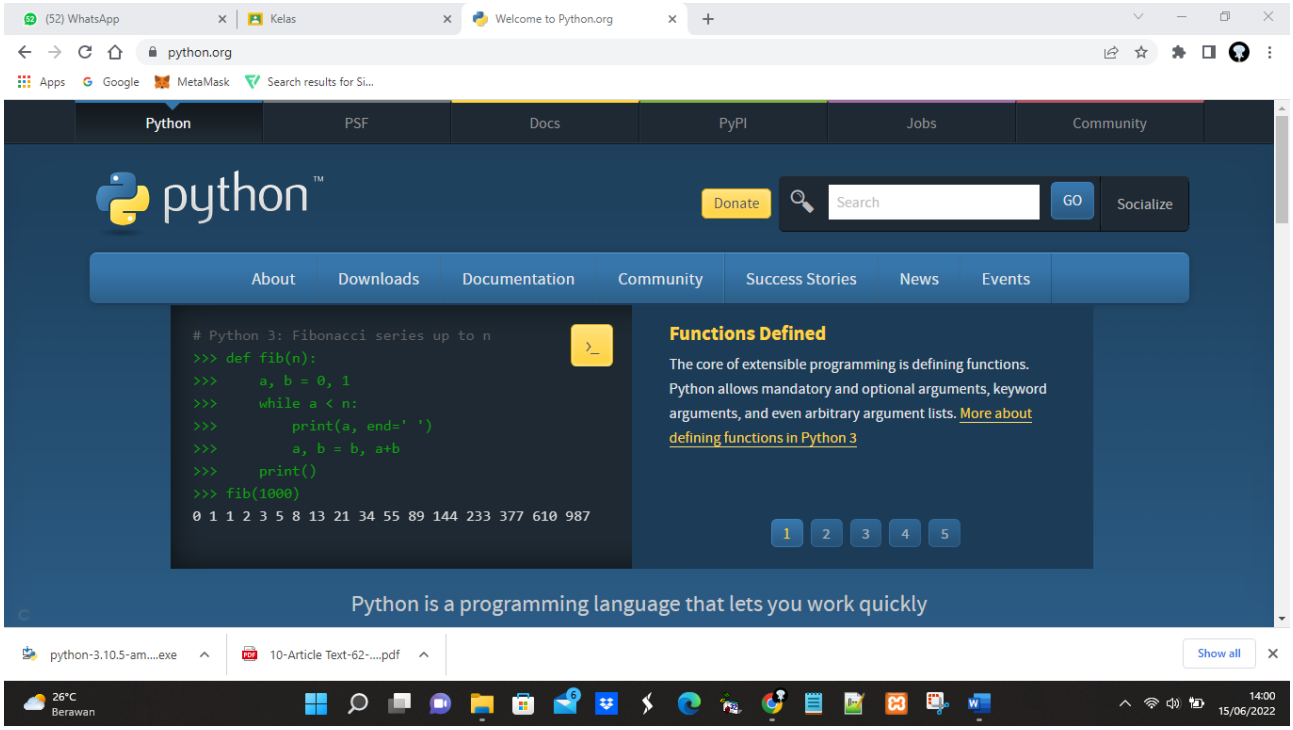

Figure 1. python.org website interface

In addition to using programming languages, this research also uses one of the most important aspects in the world of coding, namely text editors, Text Editor is a term for software or computer programs that allow us to create, change or edit existing text files into plain text form. Text editor software can be obtained for free or paid, some examples from text editors such as Notepad ++, Visual studio code, Sublime Text, Atom, and so on. In this study, researchers used a visual studio code text editor because the features in the visual studio code are quite complete and this application is also free.

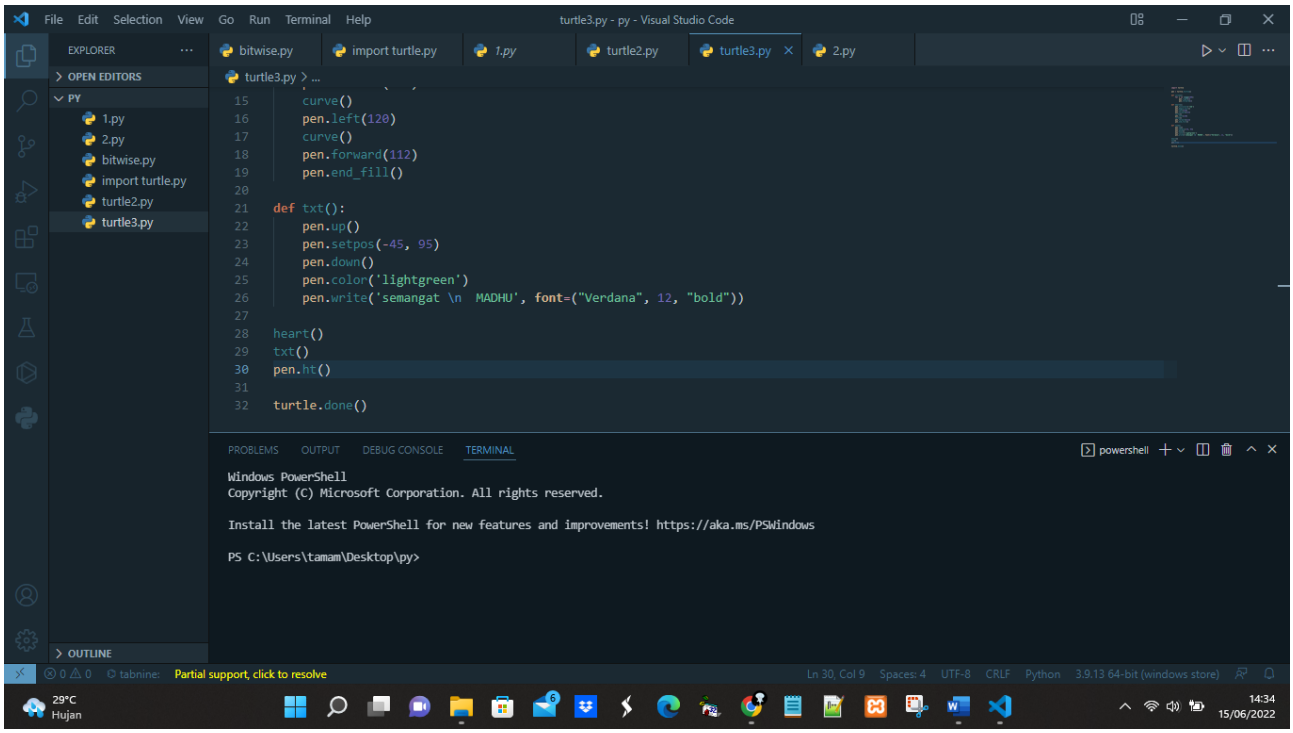

Figure 2. Visual studio code application interface

Benefits of Community Service

The benefits of community service according to Tanjung (2020) are to provide solutions to the community to increase the level of community difficulty. Meanwhile, according to Siregar (2021) that the benefit of service to the community is to provide alternative ways of implementing various activities that have an impact on people's lives. From this community service activity, it is hoped that students can better understand the world of programming and can develop their interests and talents in the field of programming, as well as provide insight and knowledge regarding industry 4.0 which is currently developing.

Solutions and Activity Targets

Community service activities in the form of " introduction of python program language to female students at MTSn 4 pandeglang school", as an effort to improve the quality of student human resources to face the world of work, especially students who are interested in the world of programming. Can provide benefits and solutions are as follows:

1) introduction of programming languages for students
2) Simple application creation process
3) increase students' insights into industry 4.0

IMPLEMENTATION METHODS

Methods in carrying out community service programs carried out to introduce computer programming languages to students, especially python programming languages, are carried out with several stages of program implementation, namely as follows:

Initial Stage

At this stage, according to Wahrudin (2020) prepare all community service activities. The researcher created a WA group to coordinate the participants of the activity (students of MTSn 4 Pandeglang) starting frobyoviding some information about what programs are implemented, and what equipment needs to be prepared for this activity.

Implementation Phase

At this stage according to Juhadi (2020) that all community activities are following the initial stage. This stage is done by delivering good material on how to install the Python programming language on a computer and using visual studio code applications and practice guides. The stage of delivering the material is carried out by presenting using PowerPoint through the Google meeting application, after which the researcher explains and displays the steps to install and use the python programming language and visual studio code application on a computer. After that, training/guidance practice, where before the start of the activity participants (students of MTSn 4 PANDEGLANG) have been given information in advance through the WA group related to the activity plan by explaining each in detail slowly and gradually each step so that the participants of the activity can understand and follow easily.

Evaluation Stage

According to Mayasari (2021), this stage assesses the extent of the implementation of community services and indicators of the achievement of activities felt by the community. At this stage, the researcher evaluates the implementation activities by giving several quizzes to test how high students' understanding of the material being taught and practice by creating a simple application using the python programming language.

RESULTS AND DISCUSSION

Based on the results of community service in the research program of teaching python programming language to students, the results can be explained and the output of the program and its impact on partner changes during the mentoring process increase significantly. This can be seen from the various stages of community service carried out, namely as follows:

Initial Stage

At this stage, the researcher explained an introduction to basic programming languages starting from downloading and installing python and text editor visual studio code, In addition to material on installing programs and applications needed, researchers also taught how to add environment variables on computers so that computers can run the python programming language

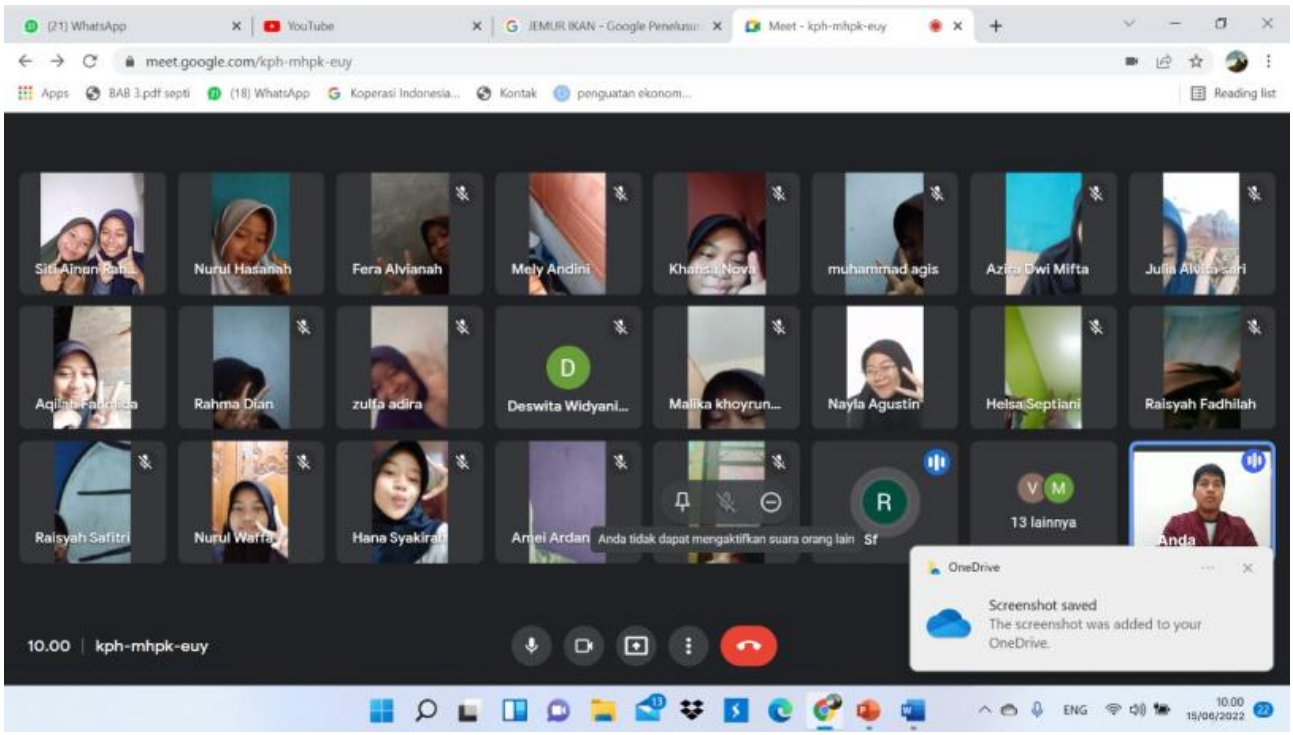

Figure 3. Google meeting introduces researchers to students

After the python application and visual studio code were installed on all participants' laptops, the researcher continued the activity with the agenda of delivering the next material, namely how to use the visual studio code application. Technically the steps to use python are as follows:

1) download the python app first
2) install the downloaded python application
3) Once installed add environment variables python on the computer so that the computer can run the python programming language the computer
4) test whether the python programming language can run on the computer or not

Once python is installed and can be used the researcher then teaches the steps to use the visual studio code application, which are as follows:

1) download the visual studio code application first
2) install the downloaded visual studio code application
3) wait for the installation to complete
4) open the installed Visual studio code application

Implementation Phase

Before conducting training / practical guidance using visual studio code applications, students will be given knowledge about the basics of python programming skills starting from writing rules, data types, operators, etc. Apart from the presentation of the basics of python researchers also explore a little about the history of the formation of the python programming language to increase knowledge insight for students. Then the researcher continued the material regarding syntax or writing the python programming language.

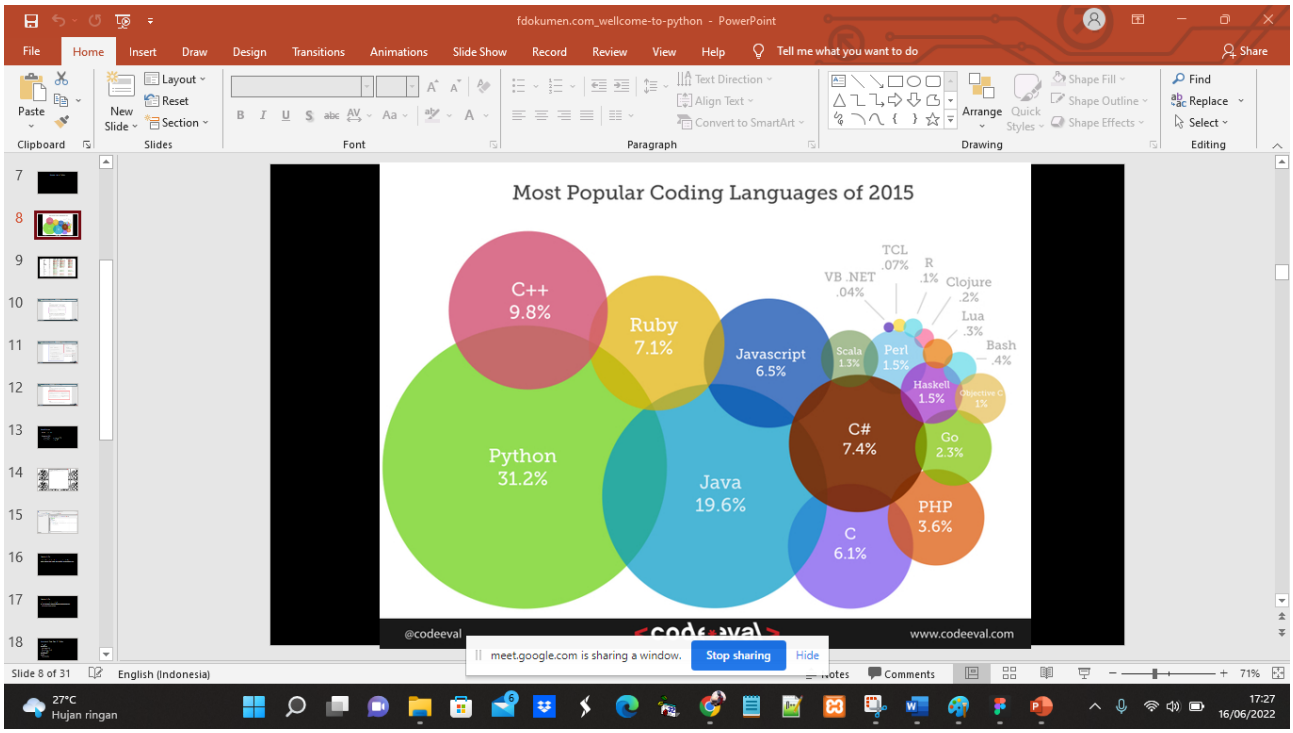

Figure 4. Google meeting introduction to python programming language

Evaluation Stage of Kegiata Implementation

This research activity was carried out in 3 meetings for 2 days with details of 1 discussion and introduction and giving material via WA group and 2 which was used to deliver material via Google meeting while meeting 3 was giving quizzes both materially and practically to find out the extent to which the students absorbed the material presented. For the material quiz, the researcher provided 20 questions, 15 multiple choices, and 5 essays that included all the material that had been taught from the beginning of the activity. As for practice, researchers provide practice in the form of making simple applications in the form of thermometer applications, in this practice students are expected to be able to build a simple application and be able to develop the material they capture through this practice.

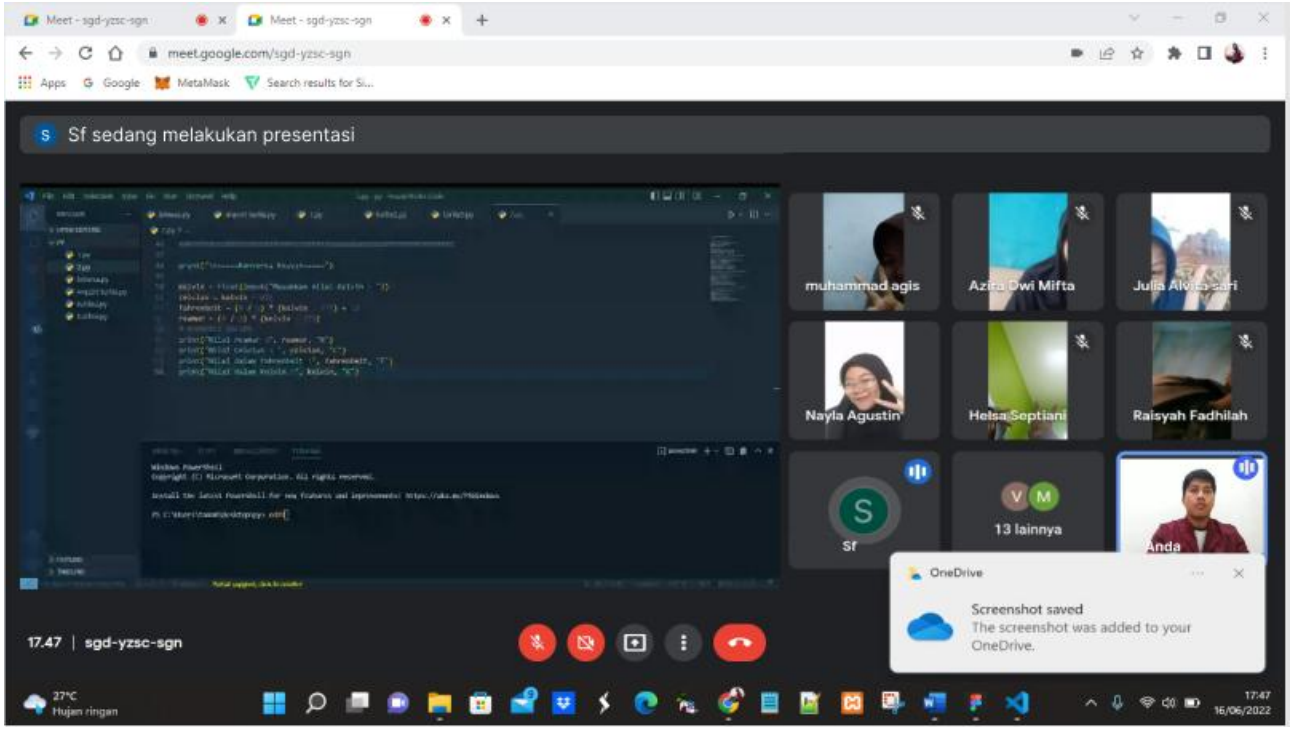

Figure 5. practical presentation from one of the students

CONCLUSIONS AND SUGGESTIONS

In this research activity, you can introduce the python programming language and the use of visual studio code applications and practice creating a simple application using the python programming language. Participants are enthusiastic and motivated to take part in the activity because of their knowledge The results obtained from his activity will greatly help participants in the future and become a stepping stone for students who are indeed interested in the IT world. More than 90% of participants can already download and install the PYTHON visual studio code application, independently. However, some lecturers still have difficulty using the application. Suggestions that can be given for the implementation of community service programs are about the introduction of python programming language to female students at MTSn 4 Pandeglang school,
is as follows:

1) In this industrial era 4.0, a deeper introduction to the IT world is needed to support students to face job competition in the future.
2) perseverance and consistency are needed if students want to go deeper into the IT world.
3) it is hoped that students will be able to master more than one programming language, to better understand the IT world, especially those who are interested in the front end, back end, and full-stack developers.

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