

## **Python Programming Language Calculator Software Technology**

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**ABSTRACT:** This article describes the techniques and methods of programming (calculator) in Python, one of the most popular and highly rated programming languages today. Currently, Python is used to teach programming language teaching methods and technologies in education. Because teaching the graphical interface of the Python programming language is a challenge in education, this article covers Python graphics extensively. Creating interface programs in hands-on activities will further increase students' interest in programming. Applying it in education is effective, that is, it contributes to the effectiveness of the lesson.

**Keywords:** programming language, graphics, Python, technology, calculator, interface, education.

### **INTRODUCTION**

In Uzbekistan, large-scale reforms aimed at building a modern information society are being carried out consistently and with a clear goal in mind. Radical changes are taking place in the education system of the republic in terms of training modern staff. Today, with the rapid introduction of information and communication technologies (ICT) in the educational process, it remains one of the most effective factors in improving the effectiveness of education. Bringing the education system up to world standards is one of the key tasks of this reform.

A characteristic feature of modern education in the world is the informatization of education and training in accordance with the needs of the information society. This is also the case in the education of the Republic of Uzbekistan, where the state policy in the field of informatization is "aimed at creating a national information system, taking into account the modern world principles of development and improvement of information resources, information technology and information systems." That is why in the education system of the developed countries there is a constant search for the effective use of computer technology, modern information and communication technologies.

### **MATERIAL AND METHODS**

The purpose of writing this article is to determine the priorities for the development of the educational process on the basis of the analysis of the application of digital technologies in the public education system of the republic, in which digital technologies play an important role not only in education. analyzes were conducted on the acquisition and in what form it will be implemented.

As the President of our country Shavkat Mirziyoyev said, "It is necessary and necessary to acquire digital knowledge and modern information technologies in order to achieve development. This will allow us to take the shortest path possible. After all, today in the world, information technology is penetrating deep into all areas. Of course, we know very well that building a digital economy requires the necessary infrastructure, a lot of money and manpower. But no matter how hard we try, if we don't start today, when will we start?! It's too late tomorrow. " [1].

Python, one of the most modern and popular programming languages today, is a very fast and simple programming language.

To solve this task, we create the first simple calculator program: by running a piece of software in a Python program, a user interface is created using the Tkinter library.

Write a program that performs one of four arithmetic operations on two real numbers (addition, multiplication, multiplication, or division). The program should only be stopped at the request of the user.

In order to prevent the program from ending on its own, it is necessary to start an infinite cycle in it. If the user enters a certain character instead of the arithmetic operation symbol, we exit it using the break operator.

If the user has entered neither an arithmetic operation symbol nor a symbol that is "disruptive" to the program, display a message stating that it was entered incorrectly.

If one of the four operating characters is entered, ask for two numbers.

Perform the appropriate arithmetic operation depending on the sign of the operation.

If a division is selected, you must verify that the second number is not zero. If so, then report that division is not possible.

You can create interesting programs using Python's tkinter module. In this article, we will learn how to create a calculator using tkinter. Like many other programming languages, it is possible to create an interface calculator program in python.

Program code:

```
from simpletk import *
from int_edit import TIntEdit

class TCalculator(TApplication):
    def __init__(self):
        TApplication.__init__(self, "Kalkulator")
        self.size = (160, 192)
        self.x1 = 0
        self.x2 = 0
        self.oper = None
        self.nextNumber = False
        f = ("Times New Roman", 12)
        self.disp = TIntEdit(self, width=14, font=f)
        self.disp.position = (8, 8)
        bNames = ['7', '8', '9', 'C',
                  '4', '5', '6', '/',
                  '1', '2', '3', '*',
                  '0', '=', '+', '-']
        btn = []
        for r in range(4):
            for c in range(4):
                k = 4*r + c
                btn.append(TButton(self, text=bNames[k], font=f, width=2))
                btn[k].position = (8+38*c, 40+38*r)
            btn[3]["fg"] = "red"
        for k in [0, 1, 2,
                 4, 5, 6,
                 8, 9, 10,
                 12]:
            btn[k].onClick = self.doDigit
        for k in [7, 11, 14, 15]:
            btn[k].onClick = self.doOperation
```

```
btn[13].onClick = self.doCalc
```

```
btn[3].onClick = self.doClear
```

```
def doClear (self, sender):
```

```
    self.disp.text = ""
```

```
    self.nextNumber = False
```

```
def doCalc (self, sender):
```

```
    if not self.oper: return
```

```
    self.x2 = self.disp.value
```

```
    if self.oper == "+": res = self.x1 + self.x2
```

```
    elif self.oper == "-": res = self.x1 - self.x2
```

```
    elif self.oper == "*": res = self.x1 * self.x2
```

```
    elif self.oper == "/": res = self.x1 // self.x2
```

```
    self.disp.text = str(res)
```

```
    self.nextNumber = True
```

```
def doOperation (self, sender):
```

```
    self.x1 = self.disp.value
```

```
    self.oper = sender["text"]
```

```
    self.nextNumber = True
```

```
def doDigit (self, sender):
```

```
    if self.nextNumber:
```

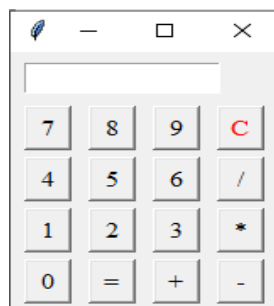
```
        self.disp.text = ""
```

```
        self.nextNumber = False
```

```
    self.disp.text = self.disp.text + sender["text"]
```

```
app = TCalculator()
```

```
app.Run()
```



## RESULTS

Python is unique in that it solves the following problems:

- Easy to read: Python has relatively few keywords, simple structure, and well-defined syntax. This allows the learner to memorize in a short amount of time. Python code will be very clear and visible.
- Easy to operate: The success of Python - the source code is very simple.
- Extensive standard library: One of the most powerful aspects of Python is that the main part of the library is very portable and compatible with cross-platforms on UNIX, Windows and Macintosh.
- Interactive method: When working in Python, you can try a terminal that is very convenient for working in the terminal.
- Portable: Python runs on a wide range of hardware platforms and has the same interface on all platforms.
- Advanced: You can add low-level modules to the Python interpreter. These modules allow programmers to add or customize their tools to be more efficient.
- Database: Python supports all databases.
- GUI programming: Python supports GUI programming for platforms such as Windows MFC, Unix, X Window.
- Flexible: Python provides better structure and support for larger applications than a shell script [2].

## DISCUSSION

Python is a high-level programming language that is widely used for general-purpose programming because it has easy-to-learn and easy-to-use syntax. It also includes scripting programming languages. Python has dynamic typing, object-oriented programming, functional programming, structured, automatic memory management, and of course, one of the most versatile programming languages. Python is written for different platforms such as Windows, Linux, Mac OSX, Palm OS, Mac OS and so on. Python has a written implementation for the Microsoft.NET platform called IronPython. Today, many world-famous companies such as NASA, Google, Yandex, CERN, Apple computer, Dream Works, space telescope institutes use Python. Python programming in the United States (University of California, University of Florida, University of Lova, University of Massachusetts Institute of Technology), Canada (University of Toronto, University of Alberta), Great Britain (Oxford University), France, Russia, Australia, Spain language is used. One of the unique features of Python is that you don't have to worry about low-level details, such as memory management, when writing this program. It also eliminates the need to write redundant code during program writing [2].

The student often has difficulty understanding data types and declaring, writing, and reading program code. Python allows you to solve these gaps because the language has simple syntax and a "low limit of access". In addition, Python is currently in high demand in the information technology market, an evolving and in-demand language, ranking fourth in the list of most popular programming languages [4]. Information about Python will be useful for students who are taking a computer science exam and continuing their studies in the field of Internet technology. The simplicity of the language helps all students master it.

Python is a simple and easy-to-read programming language that supports English words instead of keywords, so it looks different.

Python Interpreter: This means that it has been processed by the interpreter at runtime and there is no need to compile the program before executing it. This is similar to PERL and PHP.

Python Interactive: This means that you can actually sit at the Python command and communicate directly with an interpreter to write programs.

Python Object Oriented: Python supports the Object Oriented method or software technique.

Python Beginner Language: Python is a great language for beginner programmers that supports the development of a wide range of applications from simple text processing to WWW browsers to games.[3]

## CONCLUSION

This article is intended to teach students in academic lyceums, vocational colleges, and universities to learn the graphical concepts of the Python programming language. It is also advisable to use this issue in solving Olympic problems and implementing the use of this programming language in order to achieve good results. Python programming language is also taught in school computer science textbooks. Creating interface programs in the classroom will further increase students' interest in programming. The Python programming language supports both

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functional and structured programming methods, as well as highly advanced dynamic data types and dynamic type controls. Easily connects to C, C ++, COM, ActiveX, CORBA and Java.

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