

# Introduction and Analysis of Python Software

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**Abstract:** In the context of the era of rapid development of computer and Internet technology, it gives enterprises the possibility of realizing informationization and automation. Due to the traditional office needs to take up a lot of human, material and financial resources, as well as paper filing method is not environmentally friendly, easy to damage, easy to lose, poor security and other shortcomings, has been unable to meet the needs of modern office. With the development of science and technology, Microsoft Office, Adobe Systems PDF and other office software came into being, their role is increasing day by day, in life and work has an irreplaceable role. So how to better master this office software, in a faster and more efficient way, using this office automation software, is the main purpose and significance of this topic. The aim of this paper is to introduce an office automation software based on Python language that can run stably on Windows operating platform. Its appearance is an innovation to the traditional enterprise office, and also creates the conditions for enterprises to realize highly efficient automated office.

**Keywords:** Python Language; Web; Analysis.

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## 1. Introduction

With the rapid development of society, people's workload continues to increase, but also from the previous physical activities, gradually converted to mental activities. With the emergence and rapid development of computers, people's daily life and work become more and more convenient. Therefore, this project focuses on the introduction and significance of the application of Python technology.

### 1.1. Background of the Study

Society has been moving forward, technology is also constantly developing, advanced technology for people to bring economic gains, but also simplify and facilitate people's lives as well as work. In the past, people's life in the bookkeeping, arithmetic, etc. are relying on people a stroke of record, transcription, calculation; with the development of society, modernization progress, science and technology is more and more advanced. From the beginning of the emergence of computers to the popularization of people more and more work as well as records have been transferred from paper to the computer, and every year the computer will be new, the computer on the function of the increasing number of people can do a lot of people difficult to complete the calculation as well as work. All, through the use of computers, people's work efficiency has been significantly improved, for many workers to reduce a lot of burden, so the computer has become more and more indispensable to people's lives as well as work on an important tool.

### 1.2. Purpose and Significance of the Study

Aiming at a part of the workers who use computer work, through the computer Python language technology, research and design a program on windows, to help a specific part of the computer workers to complete their work better, more efficiently and quickly, to reduce the pressure of their work. It can also maximize the convenience that computers bring to people in their work. For example, most people or clerical workers in the computer often use excel software, most people simply use the above typing, recording functions, does not show the versatility of excel, as well as convenience. Through the Python language technology, it can be very good

to increase the convenience of using excel software. Can also be a greater degree of office automation, reduce the workload of computer workers, and even people's daily lives, the burden of work, for people to bring the convenience of work, can show the significance of scientific and technological progress, the significance of office automation.

## 2. Research on Development Technology Program

In this development and design program, the computer programming language used is Python language. Python programming language, compared to other languages, has the characteristics of practicality and simplicity. Since the advent of the artificial intelligence era, Python programming language has gradually increased in the list of language popularity index, and even entered the top 10.

The Python programming language has high-level data structures that enable effective object-oriented programming. The Python programming language is capable of scripting and rapidly developing applications on most platforms, and is gradually being used for standalone, large-scale projects as versions of the PyCharm development tool are updated and new features are added to the language.

### 2.1. Python's os Module

Python's os module provides an interface between the operating system and the program. Using the os module makes it easy to interact with the operating system and enhances the portability of the code.

Python's os module throws an OSError exception or a subclass of it if something goes wrong. In python programming, in the process of automated testing, often need to find the operation file, for example, to find the configuration file (so as to read the information in the configuration file), to find the test report (so as to send out the test report of the mail), and to find the test cases of the Yaml file or Excel file, etc., at this time, cannot be separated from the os module.

Of course, the use of os module can be written with no relationship between the operating system code does not mean that os does not have a way to call some of the special

system extensions, but once you do this, it will be a great degree of damage to the code portability.

## 2.2. Python's xlrd Module

In Python, the xlrd library is a very commonly used library for reading excel files, and it can provide precise and fine-grained control over the reading of excel files. Although reading and saving excel files with the pandas library is usually easier nowadays, in some special scenarios, you still need the xlrd library to complete the control of reading.

Python's xlrd module and xlwt module, can read and write Excel workbook, in relation to the convenience of Excel workbook, has a wide range of applications. xlrd can read the number of valid cells in the number of columns and rows, you can read the value of the specified cell, you can read the specified columns (rows) of the value of all the cells is, but also can read the specified cell in the data type.

If the work on the errors and omissions, the need to find or read some information in the excel file, key text for modification, most people usually do is to open the excel file, left to right, from left to right, a grid, a sentence slowly looking for. If the file records too many things, too complicated, this way of looking for that waste of time, but also a waste of energy, and even in the end after a long time looking for, if the energy drop, too tired, a moment to miss the key information, will lead to the end of the previous work, and then have to start from scratch, so that completely does not bring out the advantages of office automation software. So, at this point, we can use python's xlrd, xlrd can easily and quickly read the file's specified information, very quickly find the information that people want to find, so compared to the original relatively clumsy way is much smarter, for the work to save a lot of time, but also to help people to complete the search work, more quickly into the next job.

In the UI automation, or interface automation in the data maintenance, is also a key point, is also an important core, in fact, that is to say that this xlrd module is very practical use.

## 2.3. Python's xlwt Module

xlwt focuses on the core role is used to read excel files. xlwt is a specialized write to excel files. It is the twin and sibling of xlrd, one of their main jobs is to read excel files, and the other main job is to write data to excel files.

## 2.4. Python's Shutil Module

The shutil module is a high-level file manipulation module, and the shutil module is also a supplement to the os module. os module can perform some simple operations on excel files and directories, but more complex functions cannot be realized by the os module, for example, we need to copy the contents of a file to another file, or to copy the contents of a file, or even to copy file permissions to another file without changing the contents of the file, group or user, and here the os module cannot help us. For example, we need to copy the contents of a file to another file, or copy some contents of a file, or even copy the permissions of a file to another file without changing the contents of the file, the group and the user, which can't be realized by the os module, but can be done by the shutil module. There is also moving files and directories, or moving files and directories, which the os module can't help us with, and shutil can. And then there are more other functions, such as packing files and compressing and decompressing files, which the os module can't do, but shutil can do. So like copying, moving, packing, compressing

and decompressing, etc., which cannot be realized by os module, shutil is a good supplement. This can work for us to deal with excel files or other files to bring more features can be used, but also become a better tool to utilize to work.

## 2.5. Python's re Module

Python's re module, also known as regular expressions. For text searching and localization, Python's re module is able to find pattern matches in a string and return the matched value. In this case, it is recommended to use the built-in findall method of Python's re module.

If there is a substring that matches the pattern, a list containing one element is returned, so no matter how the match is made, we can directly iterate through the results returned by findall without error, which reduces the handling of exceptions and makes the code logic more concise for engineers writing programs.

## 2.6. Python's Pdfplumber Module

pdfplumber is a library that can handle pdf format information. As a powerful pdf file parsing tool, pdfplumber library's main function is to find out about each text character, page, page number, matrix and line details, but also on the table can be extracted, but also visual debugging. For example, pdfplumber library can quickly convert pdf format files into easier to deal with txt documents, and output pdf format document characters, pages, page numbers, matrices and rows of detailed information. Conversion between file formats, the use of this feature, the month easier for workers with different work needs to use.

## 2.7. PyCharm Development Tools

PyCharm is a commonly used easy to use very powerful Python development tools, many platforms also support PyCharm, such as the current mainstream platforms Windows, Macos, Linux and so on. Using PyCharm comes with HTML, CSS and JavaScript editor, people can more easily for Web development. Development process often need to use some of the features, such as debugging breakpoints, the use of module templates to unify the project's internal comments and mark the author, analyze the module's global variables, function location and many other commonly used features PyCharm have, which shows that the practicality and power of PyCharm.

## 3. Summary

Introduces and analyzes Python software development techniques as well as development and briefly explains the advantages of each development technique as well as the specific application of the technique in the development process of this topic. It is convenient for students and workers to skillfully use the software.

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