**Ministerul Educaţiei și Cercetării al Republicii Moldova Universitatea Tehnică a Moldovei**

**Facultatea Calculatoare, Informatică și Microelectronică**

COMPUTER ARCHITECTURE

Laboratory work 5:

Practice tasks in Assembly Language

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**Objective:**

Create an NASM assembler program that contains 10 cyclic processes (functions). Additionally, the program must allow the user to choose which of the 10 processes to

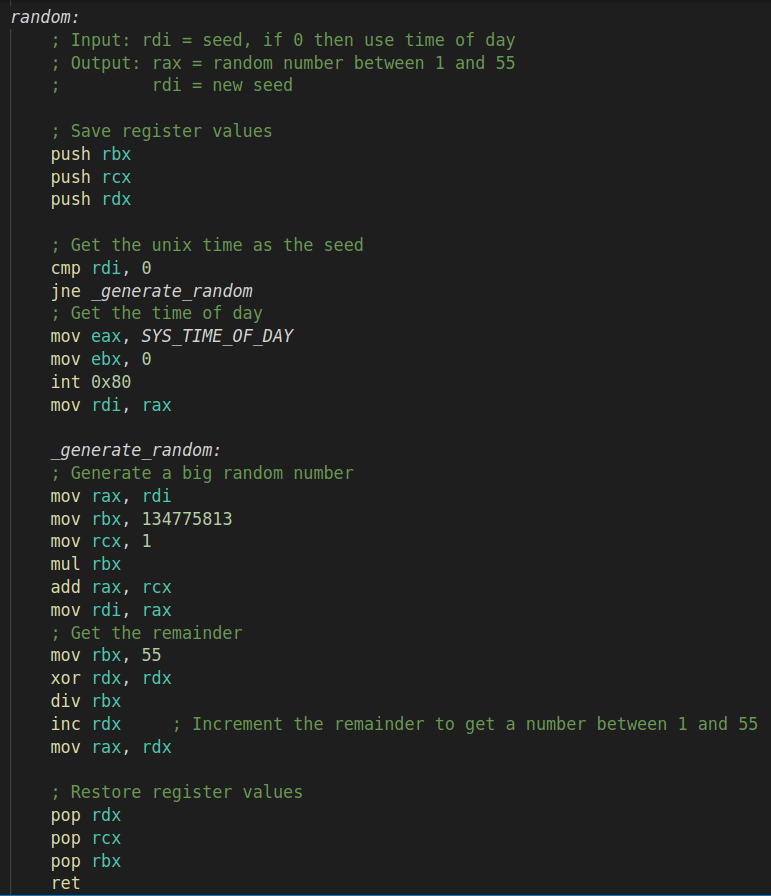
execute at program launch. The exercises to execute must be chosen by another program, that will choose 10 random numbers.

**Introduction:**

Assembly language is a low-level programming language that allows direct control over a computer's hardware. It is a vital tool in computer engineering and is widely used for developing software in various applications. In this report, we explore the fundamentals of assembly language programming, its syntax, and its application in computer systems. Specifically, this report presents beginner programs in assembly language, with the goal of providing a comprehensive understanding of the language. The laboratory work accompanying this report involves practical exercises aimed at reinforcing the theoretical concepts discussed.

**Tasks:**

1. Create a program that will contain a generator of 10 random numbers from 1 to 55 (these will be the variants).

Output:

 **Conclusion:**

In conclusion, this report has provided an overview of assembly language programming, including its syntax, structure, and application in computer systems. Through practical exercises, I have gained hands-on experience in writing programs using assembly language, providing a foundation for further exploration in this field.

By working with assembly language, I have gained insight into the underlying operations of a computer system, and the role of low-level programming in controlling hardware. This knowledge is critical in the development of software and applications for various domains, including embedded systems, operating systems, and game development.

Assembly language programming requires a thorough understanding of computer architecture and hardware, as well as a keen attention to detail. However, with practice and dedication, it is a powerful tool for developers to optimize performance and implement functionality that may not be possible using higher-level languages.

In conclusion, this laboratory work has provided a solid foundation for further exploration of assembly language programming.