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Investigation of Microsoft Services in Real Time Applications

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Abstract: ***Microsoft services includes notifications, analytics, monitoring and support for coding and execution. These services help application designers share code, test applications, and track potential issues. Microsoft Azure, a scope of use programming dialects, including JavaScript, Python, .NET, and Node.js. It likewise offers types of service like, for example, Software as a Service (SaaS), Platform as a Service (PaaS) and Infrastructure as a Service (IaaS). One of the programming language C# is often used to create almost anything, but is especially strong at building Windows desktop applications and games. It also can be used to develop web applications and has become increasingly popular for mobile development too. Cross-platform tools like Xamarin allow apps written in C# to be used on almost any mobile device. It is a broadly useful language intended for creating applications on the Microsoft stage and requires the .NET system on Windows to work. C# is frequently thought of as a cross breed that takes the best of C and C++ to make a really modernized language.***
In this paper, C# being one of the Microsoft service, is great for game development. The most popular game engine for developers on Earth is Unity and Unity uses C# for game code. Though the fact that the .NET system underpins a few other coding dialects, recently C# is flourishing and is now one of the most well-known tools to work on.
Keywords: .NET, C#, Applications(apps), Open source, Framework

I. INTRODUCTION

Microsoft's integrated development environment, Visual Studio.NET, incorporates another programming language C# (articulated "C sharp"), which focuses on the .NET Framework. Both the .NET Framework and C# are genuinely very much recorded advancements, however the stage of suitability for ongoing frameworks has not gotten a lot of consideration. Microsoft doesn't explicitly guarantee that C# and .NET are expected for constant frameworks, however a significant number of the stage's broadly useful highlights - including type risky highlights, string synchronization, and flood touchy math—applies to persistent systems. The additional investigation will help in knowing C# and the .NET Framework's appropriateness for ongoing frameworks.

A. C# is an In-Demand Skill

Being ground-breaking, adaptable, and very much upheld has implied C# has rapidly grown as one of the most famous programming dialects accessible. Today, it is the fourth most mainstream programming language, with around 31% of all engineers utilizing it routinely. It is likewise the third biggest network on Stack Overflow (which was constructed utilizing C#) with more than 1.1 million themes. This notoriety converts into a flourishing activity showcase — more than 17,000 C# occupations are promoted every month (all-inclusive) with a normal pay of more than $72,000. Narrowing down to the US just, there are more than 6,000 occupations publicized every month with a yearly compensation of $92,000.[1]

B. C# is Easy to Learn — But Complex

C# has numerous highlights that make it simple to learn. It's a significant level language, moderately simple to peruse, with a significant number of the most mind-boggling errands preoccupied away, so the software engineer doesn't need to stress over them. Memory the board, for instance, is expelled from the client's obligation and taken care of by .NET's trash assortment conspires. It's additionally a statically-composed language, so the code is checked before it is transformed into an application. This makes it simpler to discover blunders, something which can be especially helpful for novices.
Even though C#'s language structure is more predictable and sensible than C++, there's still a bounty to learn. C# is a mind-boggling language and acing it might require some investment than more straightforward dialects, for example, Python. This implies clients do need to get familiar with a generous measure of code to make propelled programs, which might be off-putting for some new clients. [1,2]

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The following figure gives the list of features about C#:

1) *Simple:* The language provides structured approach, rich set of libraries, data types etc. which makes it simple to understand.
2) *Modern Programming Language:* Based on current trend and being a powerful language to build scalable, interoperable and robust applications.
3) *Object Oriented:* C# is object-oriented which makes it more efficient and each entity is considered as an object.
4) *Type Safe:* Type safe code can only access the memory location that it has permission to execute. Hence, improving the security of the program.
5) *Interoperability:* The process of interoperability enables C# to do almost anything that the native C++ app does.
6) *Scalable and Updateable:* C# is auto scalable, according to the growth of the app and is auto updateable, by updating old files with updated files.
7) *Component Oriented:* Component-oriented programming language, is a predominant software development methodology used to develop more robust and highly scalable applications.
8) *Structured Programming Language:* Structured programming language is that the program can be broken into parts using functions. Hence, making it is easy to understand and modify.
9) *Rich Library:* C# provides a lot of in-built libraries and functions that makes development fast.
10) *Fast Speed:* The compilation and execution time of an application built using C# is fast.

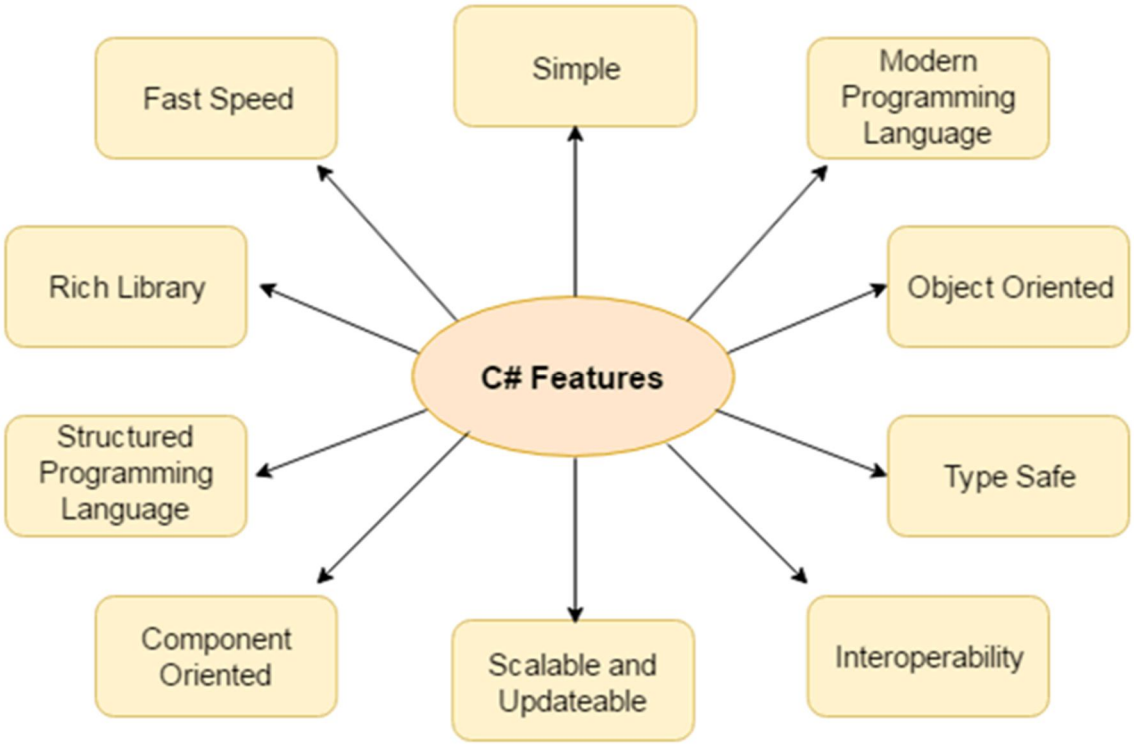


Figure 1: Features of C# [3]

II. TOOLS AND TECHNOLOGIES

Presented by Microsoft, C# is an article situated programming language that is today profoundly favoured by hopeful business visionaries for creating strong web applications. There are enormous quantities of C# web advancement and re-appropriating organizations in the market. To help administration searchers locate the correct web application accomplice, Good Firms has gathered a rundown of top C# engineers that are rumoured for conveying profoundly successful C# answers for customers the whole way across the globe, few are listed below:

A. IndiaNIC (Computerized Product Agency with Enterprise Experience)

"Being a leading website application development company, the certified developers have unparalleled expertise in working with the latest web technologies to deliver custom web solutions". [4]

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B. ELEKS (Your Technology Partner for Software Innovation)

"ELEKS is a Top 100 Global Outsourcing organization. They cooperate with big business customers and Small and Medium Enterprises (SME's) to raise their incentive through inventive advancements. Their 1,500+ specialists, situated across Europe and the US, give our customers a full scope of programming administrations. These incorporate custom programming advancement, item structure, quality confirmation, Research and Development(R&D), keen groups and backing and upkeep administrations". [4]

C. Simform (Expanded group that is a piece of your group)

"Simform is a top custom programming advancement organization, web application development service includes everything from a simple Content Management System (CMS) enabled website to developing powerful progressive web applications". [4]

D. Iflexion (Custom Software Propelled Web and Mobility Solutions)

"Helping their customers embrace the mobile-centric web reality and transform legacy systems into modern cross-platform applications. Drawing on their deep front-end expertise, the web app developers implement the most demanded web app development scenarios". [4]

The figure below depicts the total number of employees working in the companies worldwide, using C#. The maximum number of companies are 36,365 with 10 to 49 employees.

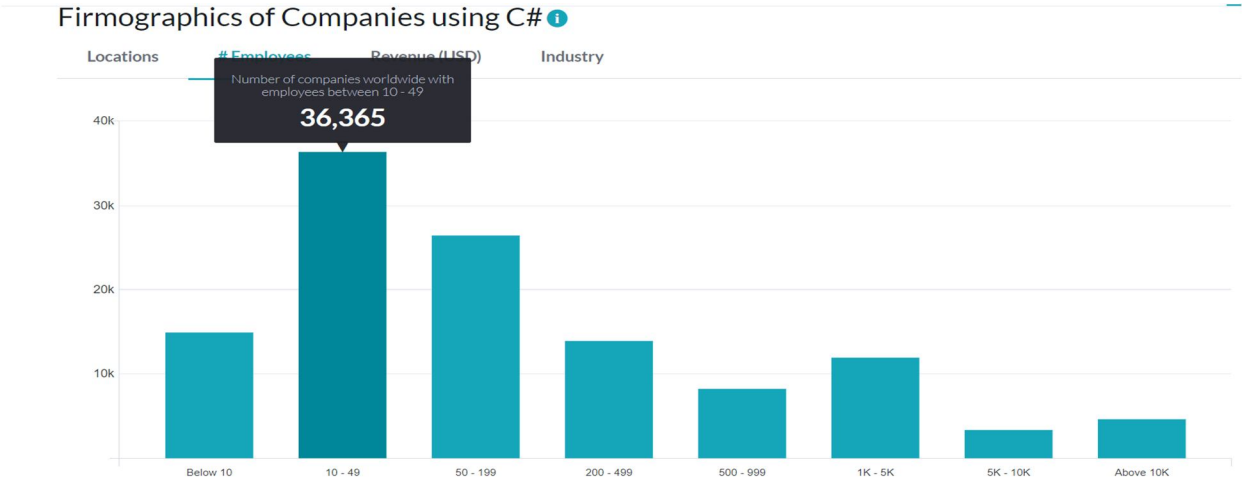


Figure 2: Graph that shows the number of employees to the number of companies [5]

The figure below depicts the revenue earned for the companies worldwide, using C#. The maximum number of companies are 32,451 with $1M to $10M revenue.

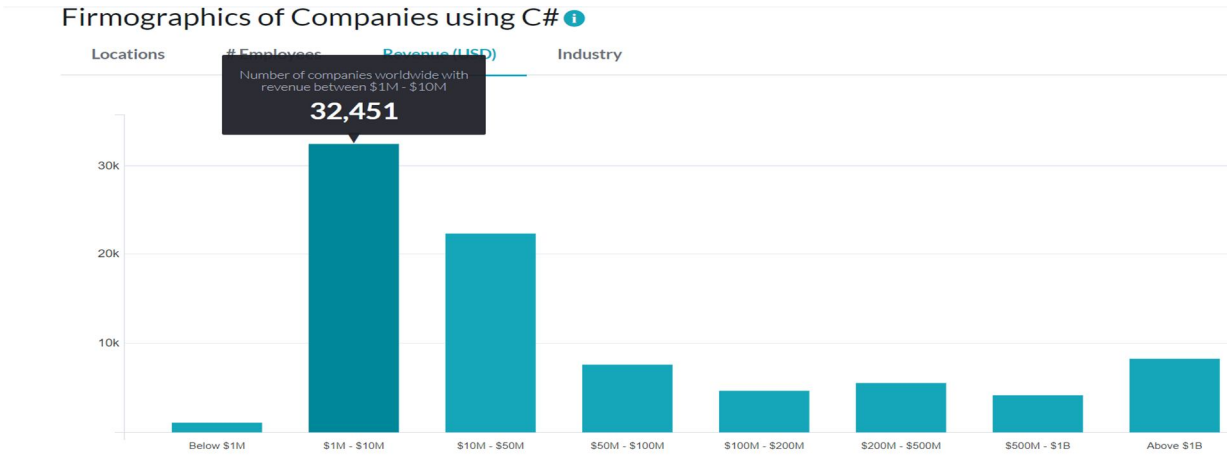


Figure 3: Graph that shows the revenue and number of companies [5]

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The figure below depicts the total number of each type of industries worldwide, using C#. The maximum number of industries that is present are "Technical Industries" with the count of 29,604.

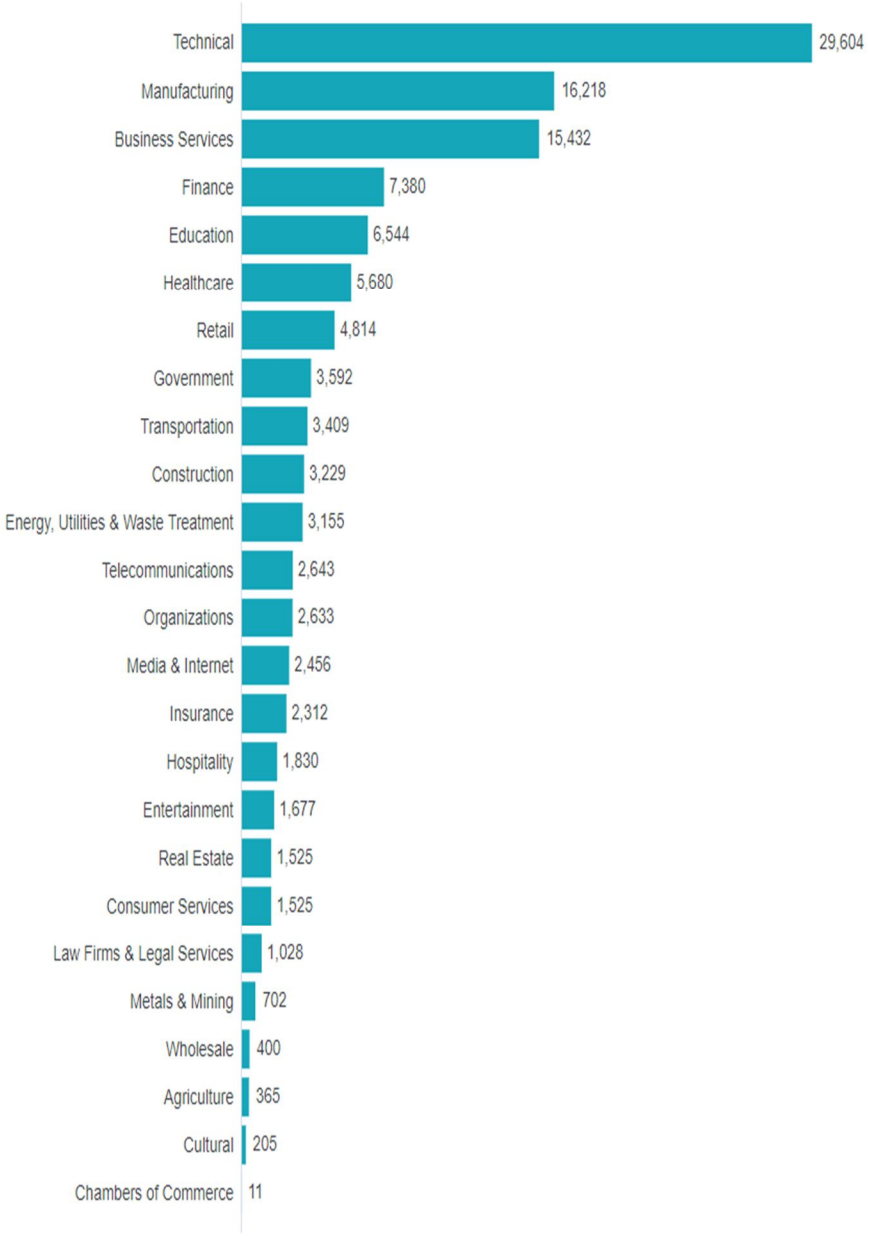


Figure 4: Graph that shows the type of companies and their number [5]

III. APPLICATIONS

One can compose C# in any supervisor as their requirement:

A. C# is open source now
B. C# runs on Windows, Mac, and Linux
C. C# can be utilized to assemble Windows customer applications, Windows Store applications, iOS applications, and Android applications and can likewise be utilized to manufacture backend and centre level systems and libraries

In contrast to other programming languages, C# is as yet youthful and advancing. Presently being publicly released, C# is getting network inclusion and new highlights are being chosen by network. Using C# to build just about anything: business applications, games, web apps, and mobile/tablet apps. Here are few applications that can be built with C# technology. [6]

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1) *Video Games:* C# is very famous in numerous areas of the gaming business. One can utilize C# to rapidly create games for Windows, Android, iOS, and Mac OS X. One of the most well-known game-creating stages is Unity, and C# is one of the most widely recognized and least demanding programming dialects that can be used in the Unity condition. A couple of games worked in Unity utilizing C# are Bastion, Shadowrun Returns, Rust, Wasteland 2, and Hearthstone.

A small gaming project is done using the technology discussed and its output is displayed below in the figure as an example.

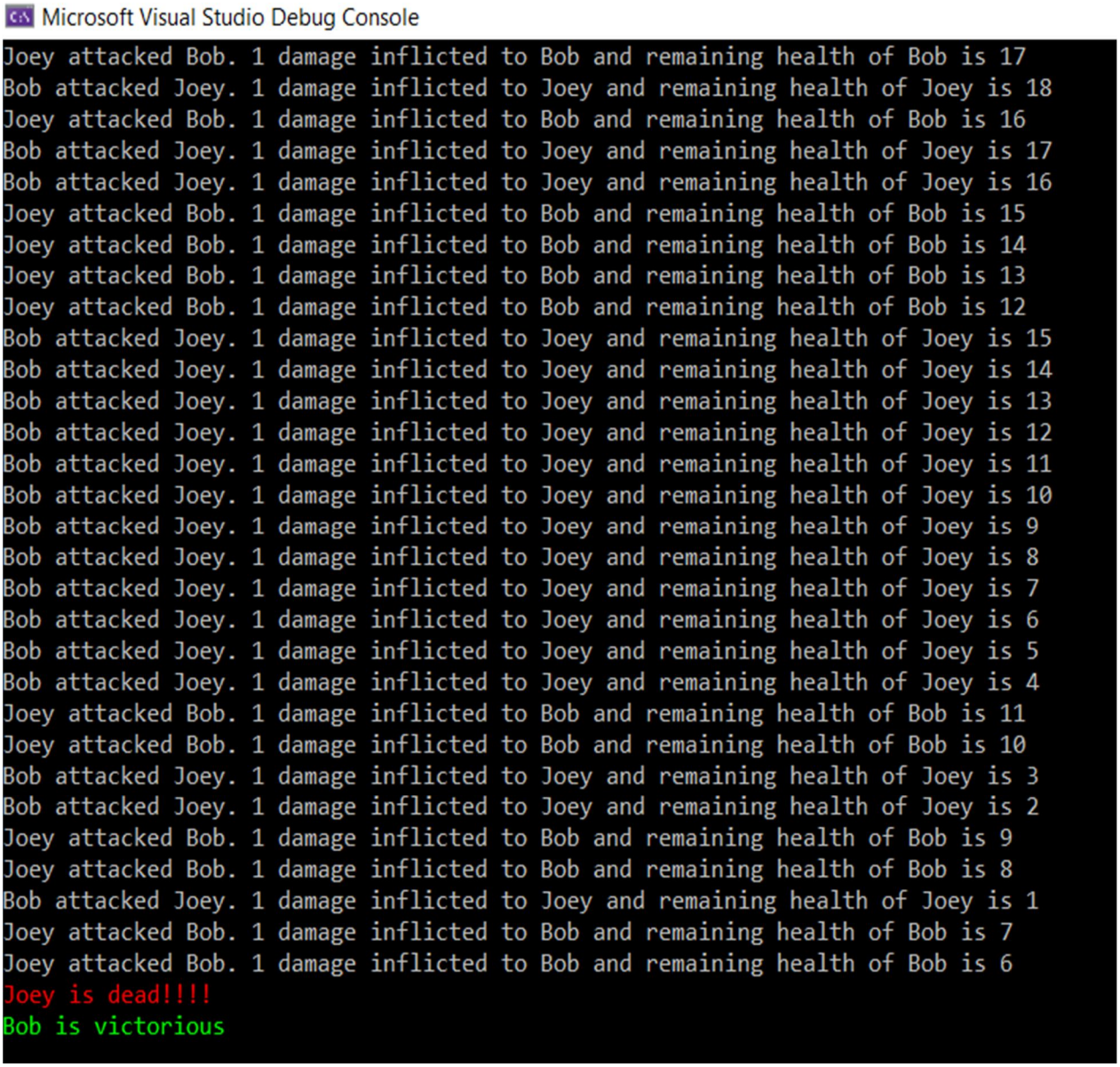


Figure 5: The output of the project using C# and ASP.net

The project created is a gaming application which has two players (Joey and Bob in the current project) in it. The game starts with one of the players attacking the other one using few weapons. Depending on the count of damage and health remaining for each player after every counter attack, the one who loses all health is a looser and is said to be dead.

2) *Anti-Hacking Software:* In a world now rich in digital assaults, significant hacks, and an earnest need to guard delicate data, it does not shock anyone that organizations, government, and monetary establishments are scrambling to mass with their cybersecurity. These substances are building up their advancement groups with engineers solid in C# .NET innovation to fabricate and improve security programming that keeps any semblance of Wikileaks, Anonymous, and any potential ransomware from noxiously hacking into their and your information.

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3) *Windows Apps (i.e.: Microsoft Office, Skype, Photoshop):* Today, Windows Forms and Windows Presentation Foundation (WPF) are two major technologies used to develop client applications. Few applications are: Microsoft Office (Word, PowerPoint, Excel and so on), Internet Explorer, Skype, Visual Studio 2012, Photoshop, SQL Server 2012, Paintbrush.
4) *Mobile Apps:* C# is viewed in numerous improvement hovers as the best language for versatile application advancement. One can manufacture local versatile applications for different platforms – Android, iOS, and Windows gadgets – on a common C# codebase. Truly, this implies its likewise making an application that works and looks wonderful on an iPhone too. Few applications are: Slack, Insightly, Pinterest, Tableau, The World Bank, Cinemark, NBCUniversal, FoxSports, Aviva, Taxfyle.
5) *Windows Store Apps:* Windows store apps were introduced by Windows 8, which coincides with the rise of C#'s popularity. Windows store apps are different than mobile app development, and are built primarily using C# and Extensible Application Mark-up Language (XAML). XAML is used to build app screens and C# is used to run in the backend.
6) *Web Apps:* C# can be used to create web applications too and the project can be created as a job portal for example, therefore aiming at linking the job seekers and available jobs. To achieve this, the application can be built in such a way that it aggregates existing job postings from web portals to improve accessibility, timeliness and efficiency. Since, there is a challenge of unemployment among the youth today. Many University graduates fail to get jobs because the job market seems saturated since the available jobs cannot be found.

IV. CONCLUSION

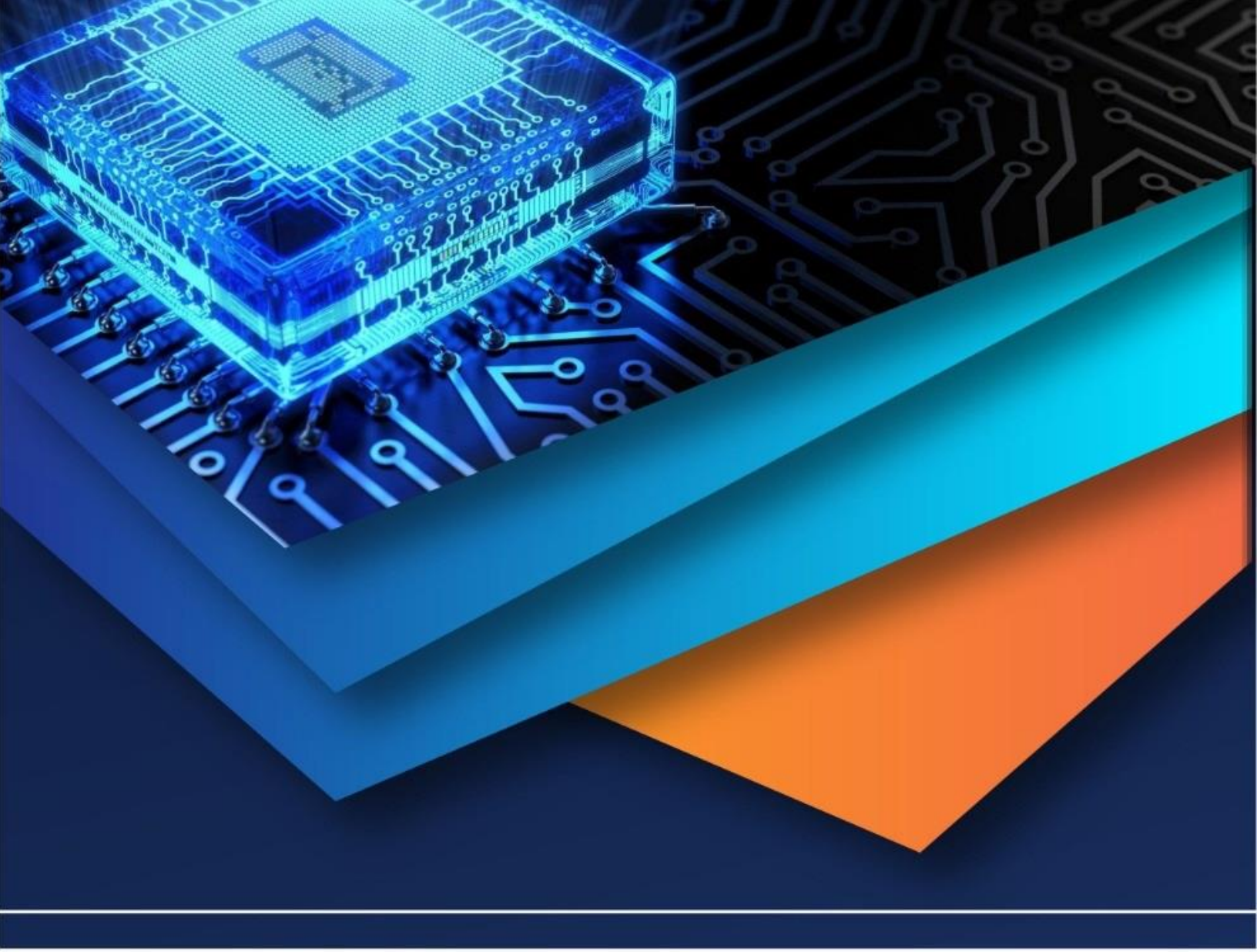
C# gives you access to a rich arrangement of built-in data types dependent on the common type of framework just as the .NET Framework class library. Similarly, as with all object-oriented languages, in C# you can leverage built-in data types and class libraries to build your own new types of applications. While uncovering your new data types for utilization by others, your data types should ought to fit in with the Common Language Specification (CLS) to amplify their reuse by engineers utilizing other programming languages.

C# shares a considerable lot of the highlights of other articles situated dialects, for example, C++. C# incorporates support for virtual strategies, dynamic classes, and technique over-burdening. C# offers extra highlights that advance increasingly reusable and progressively strong classes, for example, a prevalent model for abrogating strategies in inferred classes and an improved exemption taking care of model.

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