IMS ENGINEERING COLLEGE

APPROVED BY AICTE , NEW DELHI & AFFILLIATED TO DR.A.P.J

ABDUL KALAM TECHNICAL UNIVERSITY, LUCKNOW

NAAC ACCREDITED WITH 'A' GRADE

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

PROJECT REPORT ON

MEASUREMENT OF CENTRAL TENDENCY

SUBMITTED BY :

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DECLARATION

We hereby declare that this submission is our own work and dedication that, to the best of my knowledge and belief.It contains no material that is previously published or written by another person nor any material which to a substantial extent has been accepted for the award of any other degree or diploma of the university or other institute of higher learning and education except where due acknowledgment has been made in the text.

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This is to certify that Project Report entitled ***"MEASURE OF CENTRAL TENDENCY"*** *which is submitted by(***Roll no) 2001430100155,2001430100144,2001430100148,2001430100150** *in partial fulfillment of the requirement for the award of degree of B. Tech. in Department of Computer Science & Engineering of U. P. Technical University, is a record of the candidates own hard work and dedication carried out by them under my/our supervision. The matter embodied in this project is original and has not been submitted for the award of any other degree.*

We certify that, to the best of our knowledge, this Project report does not infringe upon anyone's copyright nor violate any proprietary rights and that any ideas, techniques, quotations or any other material from the work of other people included in our Project report, published or otherwise, are fully acknowledged in accordance with the standard referencing practices. In case of any complaints pertaining to plagiarism, we certify that we shall be solely responsible for the same and we understand that as per norms, University can even revoke the degree conferred upon the student(s) submitting this Project report, in case it is found to be plagiarised.

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ACKNOWLEDGEMENT

It gives us a great sense of pleasure to present the report of the Project undertaken during B. Tech. 2nd Year. We owe special debt of gratitude to Professor ANJALI,Department of Computer Science & Engineering, IMS EngineeringCollege , Ghaziabad for his constant support and guidance throughout the course of our work. Her sincerity, thoroughness and perseverance have been a constant source of inspiration for us. It is only his cognizant efforts that our endeavors have seen light of the day.

We also take the opportunity to acknowledge the contribution of HOD Dr. AVDHESH GUPTA, Department of Computer Science & Engineering, IMS Engineering College , Ghaziabad for his full support and assistance during the development of the project.

We also do not like to miss the opportunity to acknowledge the contribution of all faculty members of the department for their kind assistance and cooperation during the development of our project. Last but not the least, we acknowledge and thank our friends and family members for their contribution in the completion of the project.

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This is to certify that Mr. Prakhar Tiwari, Mr. Pawan and Ms. Pooja Singhal , Ms. Pragya Chaudhary of Computer Science And Engineering Department of IMS Engineering College , Ghaziabad has interacted with me for some technical inputs in regard of their project work. I would like to continue in providing such technical inputs for student projects in future as well.

I wish them the very best in all their future endeavors.

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ABSTRACT

This project aims to develop a calculator to measure the value of central tendency. This will help us to calculate the values of the following topics very easily:

1. *Mean*
2. *Median*
3. *Mode*
4. *Harmonic Mean(HM)*
5. *Geometric Mean(GM)*

It have been created keeping in mind the difficulties faced by the students in calculating the above topics. Today in this fast developing world no one want to perform lengthy calculations and if a small error occurs it will lead to wastage of our hard work and time . Here our program provides an easy method to get the values of the above topics(in all cases) with step by step solutions which will not only save our precious time and get exact answers but also increase our interest in this mathematical field.

Users have to provide few data to get their answers. This program assist the end user with questions related to the above topic.The user statements /commands are analysed with the help of C++to give an optimum solution. Data file handling is also used to store the solutions in a file for future use and preference.

TABLE OF CONTENTS

INTRODUCTION TO C++

C++ *is a general-purpose programming language created by Bjarne Stroustrup as an extension of the C programming language, or "C with Classes". The language has expanded significantly over time, and modern C++ now has object-oriented, generic, and functional features in addition to facilities for low-level memory manipulation. It is almost always implemented as a compiled language, and many vendors provide C++compilers ,including the Free Software Foundation, LLVM, Microsoft, Intel, Oracle, and IBM, so it is available on many platforms.*

C++ was designed with an orientation toward system programming and embedded, resource-constrained software and large systems, with performance, efficiency, and flexibility of use as its design highlights. C++ has also been found useful in many other contexts, with key strengths being software infrastructure andresource-constrained applications, including desktop applications, video games, servers (e.g. e-commerce, web search, or databases), and performance-critical applications

C++ is a middle-level language rendering it the advantage of programming low-level (drivers, kernels) and even higher-level applications (games, GUI, desktop apps etc.). The basic syntax and code structure of both C and C++ are the same.

Some of the ***features & key-points*** *to note about the programming language are as follows:*

- ***Simple****: It is a simple language in the sense that programs can be broken down into logical units and parts, has a rich library support and a variety of data-types.*
- ***Machine Independent but Platform Dependent****: A C++ executable is not platform-independent (compiled programs on Linux won't run on Windows), however they are machine independent.*
- ***Mid-level language****: It is a mid-level language as we can do both systems-programming (drivers, kernels, networking etc.) and build large-scale user applications (Media Players, Photoshop, Game Engines etc.)*
- ***Rich library support****: Has a rich library support (Both standard ~ built-in data structures, algorithms etc.) as well 3rd party libraries (e.g. Boost libraries) for fast and rapid development.*
- ***Speed of execution****: C++ programs excel in execution speed. Since, it is a compiled language, and also hugely procedural.*

Newer languages have extra in-built default features such as garbage-collection, dynamic typing etc. which slow the execution of the program overall. Since there is no additional processing overhead like this in C++, it is blazing fast.

- ***Pointer and direct Memory-Access**: C++ provides pointer support which aids users to directly manipulate storage address. This helps in doing low-level programming (where one might need to have explicit control on the storage of variables).*
- ***Object-Oriented**: One of the strongest points of the language which sets it apart from C. Object-Oriented support helps C++ to make maintainable and extensible programs. i.e. Large-scale applications can be built. Procedural code becomes difficult to maintain as code-size grows.*
- ***Compiled Language**: C++ is a compiled language, contributing to its speed.*

Applications of C++:

C++ finds varied usage in applications such as:

- *Operating Systems & Systems Programming. e.g. Linux-based OS (Ubuntu etc.)*
- *Browsers (Chrome & Firefox)*
- *Graphics & Game engines (Photoshop, Blender, Unreal-Engine)*
- *Database Engines (MySQL, MongoDB, Redis etc.)*
- *Cloud/Distributed Systems*

FACTS AND ADVANTAGES OF C++

Some interesting facts about C++:

Here are some awesome facts about C++ that may interest you:

1. *The name of C++ signifies the evolutionary nature of the changes from C. "++" is the C increment operator.*
2. *C++ is one of the predominant languages for the development of all kind of technical and commercial software.*
3. *C++ introduces Object-Oriented Programming, not present in C. Like other things, C++ supports the four primary features of OOP: encapsulation, polymorphism, abstraction, and inheritance.*
4. *C++ got the OOP features from Simula67 Programming language.*
5. *A function is a minimum requirement for a C++ program to run.(at least main() function)*

Advantages of C++:

1. Portability:

C++ provides this feature of portability allowing us to develop codes without caring about the hardware. This lets us move the development of a program from one platform to another.
For example, you're working on Windows OS and for some reason, you have to switch to LINUX, the codes from Windows OS will also run in the LINUX OS without any error.

2. Mid-level programming language:

Being a mid-level programming language, we can treat it as both a low-level and high-level language. Features of high-level language help to develop games and desktop applications, whereas features of low-level language help make kernels and drivers.

3. Object-Oriented:

The OOP concepts like polymorphism, encapsulation, inheritance, and abstraction give C++ the biggest advantage over other programming languages. It proved to be of great significance since this feature was not in C, this helped users to treat data as objects and classes.

4. Multi-paradigm programming language:

Paradigm refers to the planning involved in programming. It concerns the logic, the style, and the way how we proceed with the program. C++

is a multi-paradigm programming language as it follows three paradigms:

a. Generic – *Using a single idea that serves multiple purposes.*
b. Imperative *– Using steps that change the state of the program.*
c. Object-Oriented *– Using methods and classes for reusability and modularity.*

5. Memory Management:

C++ supports DMA (Dynamic Memory Allocation), which helps to free and allocate memory. Since there is no garbage collection, C++ gives the programmer total control over memory management.

6. Fast and Powerful:

As C++ is a compiler-based programming language; we do not require to install a special runtime while running the program. Hence, they are pre-interpreted and it makes the code faster and more powerful.

Even the compilation and execution are faster allowing it to create several kinds of programs from games to drivers to complicated GUIs.

7. Similar to other languages:

C++ syntax is similar to C#, C, and Java. It makes learning C++ easier if you already know one of them. It also makes switching to and from other languages easier.

This can be treated as an added benefit that C++ is compatible with C programs i.e. every running C program can be run as a C++ program. Most of the time we just need to run the program on a file .cpp extension.

8. Standard Library:

C++ provides a good range of built-in libraries. They help in making the software development faster and allows the user to do more with less.

9. Wide Range of Applications:

C++ is useful to make GUIs as well as games. C++ is also useful to develop graphics and real-time algebraic simulation. Hence, C++ is beneficial in every stream.

10. Huge Community:

C++ has a vast community around it. Community size is very important if it has a huge number of paid/free online courses and lectures are

available,then it becomes very easy for beginners to programme or learn courses which also shows how community support works.

11. Scalability:

One of the greatest advantages of C++ is its scalability, i.e. its program can be scaled to another level. Hence, resource-intensive applications can be built using C++, as the programs can be low-scale and high-scale.

12. Big Job Market:

As we know that C++ has benefits in various departments from finance to app developments, GUI to Games, C++ has a very big job market. Knowledge of C++ can help you secure a job at such departments where C++ comes in handy.

If you want to get supported every now and then. The larger the community size, more the help you'll get to solve your problems.

INTENDED AUDIENCE

The intended audience for this project is the development team, the project evaluation jury, and other tech – savvy enthusiasts who wish to further work on the project.

PROBLEM STATEMENT

We are well aware about Mathway, Microsoft math solver ,Symbolab,k5 learning and many other tools which is used for solving math problems . But to our surprise there is no such efficient tool which gives the step by step solution of the measurement of central tendency which include :

1.Mean

2.Median

3.Mode

4.Harmonic mean

5.Geometric mean

Therefore this program will provide the users with step by step solution of the above topics easily.

THEORY OF THE PROJECT

1. MEAN:

2. MEDIAN:

3.MODE:

4.HARMONIC MEAN:

5.GEOMETRIC MEAN:

TECHNOLOGY USED

1.C++ :*C++ is a middle-level language rendering it the advantage of programming low-level (drivers, kernels) and even higher-level applications (games, GUI, desktop apps etc.). The basic syntax and code structure of both C and C++ are the same.C++ was designed with an orientation toward system programming and embedded, resource-constrained software and large systems, with performance, efficiency, and flexibility of use as its design highlights. C++ has also been found useful in many other contexts, with key strengths being software infrastructure and resource-constrained applications, including desktop applications, video games, servers (e.g. e-commerce, web search, or databases), and performance-critical applications.*

*2.**COMMAND PROMPT:** Command prompt is a command line interpreter application available in most windows operating systems. It is used to execute entered commands. Most of those commands automate tasks via scripts and batch files ,perform advanced administrative functions, and troubleshoot or short certain kinds of windows issues.*

SOFTWARE REQUIREMENT SPECIFICATIONS

SYSTEM TESTING

1.MEAN FOR INDIVIDUAL OBSERVATIONS:

2.MEAN FOR FREQUENCY DISTRIBUTION:

3.MEAN FOR CONTINUOUS FREQUENCY DISTRIBUTION:

4.MEDIAN FOR INDIVIDUAL OBSERVATION:

5.MEDIAN FOR FREQUENCY DISTRIBUTION:

6.MEDIAN FOR CONTINUOUS FREQUENCY DISTRIBUTION:

7.MODE FOR INDIVIDUAL OBSERVATION:

8.MODE FOR CONTINUOUS FREQUENCY DISTRIBUTION:

9.HARMONIC MEAN:

10.GEOMETRIC MEAN:

FEATURES

Using this project we will get the step by step solution of the following central tendencies:

1.Mean

2.Median

3.Mode

4.Harmonic mean

5.Geometric mean

This program will prompt user with some basic information regarding their question and it will give the step by step solution of the above tendencies so that a user having basic knowledge about the above topics can understand the solution easily and practise by themselves .

This program also saves the step by step solution in a file which can be accessed afterwards for future use.

CONCLUSION AND FUTURE SCOPE

Through this program we have solved many critical and difficult problems related to the central tendencies. This programs easily provide the solution by prompting some basic information about the question

We aim to make this project accessible to every students online by creating a website for the same so that the students can easily get the solution of difficult problems. This will motivate the students in solving the difficult mathematics problems as maths is always feared by many students.

We plan to make this program available online in future so that anyone in need can access it for free.

BIBLIOGRAPHY

1.www.google.com

2.wikipedia

3.geeks for geeks

DECLARATION

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the award of any other degree or diploma of the university or other institute of higher learning, except where due acknowledgment has been made in the text.

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CERTIFICATE

This is to certify that Project Report entitled ”E-Election Voting”in partial fulfillment of the requirement for the award of degree of B. Tech. in Department of Computer Science & Engineering of U. P. Technical University, is a record of the candidates own hard work and dedication carried out by them under my/our supervision. The matter embodied in this project is original and has not been submitted for the award of any other degree.

We certify that, to the best of our knowledge, this Project report does not infringe upon anyone’s copyright nor violate any proprietary rights and that any ideas, techniques, quotations or any other material from the work of other people included in our Project report, published or otherwise, are fully acknowledged in accordance with the standard referencing practices. In case of any complaints pertaining to plagiarism, we certify that we shall be solely responsible for the same and we understand that as per norms, University can even revoke the degree conferred upon the student(s) submitting this Project report, in case it is found to be plagiarised.

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ACKNOWLEDGEMENT

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CERTIFICATE OF ASSOCIATION

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I wish them the very best in all their future endeavors.

Name:
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ABSTRACT

This project aims to develop a E-Voting System.

It have been created keeping in mind the difficulties faced by society of people and the government. Today in this fast developing world no one want to do a heavy task work and if a small error occurs it will lead to wastage of our hard work and time . Here our program provides an easy method to vote in secure way with step by step solutions which will save our precious time and efforts.

TABLE OF CONTENTS

INTRODUCTION TO C

C is a general-purpose, procedural computer programming language supporting structured programming, lexical variable scope, and recursion, with a static type system. By design, C provides constructs that map efficiently to typical machine instructions. It has found lasting use in applications previously coded in assembly language. Such applications include operating systems and various application software for computer architectures that range from supercomputers to PLCs and embedded systems.

A successor to the programming language *B*, C was originally developed at Bell Labs by Dennis Ritchie between 1972 and 1973 to construct utilities running on Unix. It was applied to re-implementing the kernel of the Unix operating system.During the 1980s, C gradually gained popularity. It has become one of the most widely used programming languages,with C compilers from various vendors available for the majority of existing computer architectures and operating systems. C has been standardized by ANSI since 1989 (ANSI C) and by the International Organization for Standardization (ISO).

C is an imperative procedural language. It was designed to be compiled to provide low-level access to memory and language constructs that map efficiently to machine instructions, all with minimal runtime support. Despite its low-level capabilities, the language was designed to encourage cross-platform programming. A standards-compliant C program written with portability in mind can be compiled for a wide variety of computer platforms and operating systems with few changes to its source code.

Since 2000, C has consistently ranked among the top two languages in the TIOBE index, a measure of the popularity of programming languages.

THE C LANGUAGE EXHIBITS THE FOLLOWING CHARACTERISTICS:

- The language has a small, fixed number of keywords, including a full set of control flow primitives: `if/else`, `for`, `do/while`, `while`, and `switch`. User-defined names are not distinguished from keywords by any kind of sigil.
- It has a large number of arithmetic, bitwise, and logic operators: `+`,`+=`,`++`,`&`,`||`, etc.
- More than one assignment may be performed in a single statement.
- Functions:
    - Function return values can be ignored, when not needed.
    - Function and data pointers permit *ad hoc* run-time polymorphism.
    - Functions may not be defined within the lexical scope of other functions.
- Data typing is static, but weakly enforced; all data has a type, but implicit conversions are possible.
- Declaration syntax mimics usage context. C has no "define" keyword; instead, a statement beginning with the name of a type is taken as a declaration. There is no "function" keyword; instead, a function is indicated by the presence of a parenthesized argument list.
- User-defined (typedef) and compound types are possible.
    - Heterogeneous aggregate data types (`struct`) allow related data elements to be accessed and assigned as a unit.
    - Union is a structure with overlapping members; only the last member stored is valid.
    - Array indexing is a secondary notation, defined in terms of pointer arithmetic. Unlike structs, arrays are not first-class objects: they cannot be assigned or compared using single built-in operators. There is no "array" keyword in use or definition; instead, square brackets indicate arrays syntactically, for example `month[11]`.
    - Enumerated types are possible with the `enum` keyword. They are freely interconvertible with integers.
    - Strings are not a distinct data type, but are conventionally implemented as null-terminated character arrays.
- Low-level access to computer memory is possible by converting machine addresses to typed pointers.
- Procedures (subroutines not returning values) are a special case of function, with an untyped return type `void`.
- A preprocessor performs macro definition, source code file inclusion, and conditional compilation.

- **There is a basic form of modularity: files can be compiled separately and linked together, with control over which functions and data objects are visible to other files via `static` and `extern` attributes.**
- **Complex functionality such as I/O, string manipulation, and mathematical functions are consistently delegated to library routines.**

SOFTWARE REQUIREMENTS SPECIFICATIONS

A E-Voting system is created with the help of C programming.File handling is used in the project that work as a backend .Conditional statements is used along with the switches cases that help to switch from one condition to another easily.Some graphics code is used that increase the beauty of the output window.
Several function is used one by one that perform their own function when required.

SYSTEM TESTING

FEATURES

Accuracy :

- **Not possible to alter a vote.**
- **No valid vote can be eliminated from the final tally.**
- **No invalid vote can be counted.**

- **Democracy : Only and every eligible voter can vote and only ONCE.**
- **Privacy :**
  - **Neither election authority nor anyone else can link a vote to a voter.**
  - **No voter can prove he/she proved voted in a certain way.**
- **Verifiability : Anyone can independently verify that counting was correct.**
- **Flexibility**
- **Mobility**
- **Convenience**

CONCLUSION AND FUTURE SCOPE

An online E-Voting System have many advantages in the present and future scope.With the help of online voting system a lot of time will be saved of government and of voters also.With the help of online voting system their is a less chances of corruption and fraud.In the future scope their wiil be a chances to vote from the homes of the voters without going to the buth and stand in the croud of lines to wait for their turn to vote,this also wastes a lot of time.

By the online voting system their is a security of vote and of voter also.

It is easy to use and easy to debug.We plan to make this program available online in future so that anyone in need can access it for free.

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3.geeks for geeks