Sanjay Ghodawat University Kolhapur

Established as a State Private University under Govt. of Maharashtra Act No. XL dated 3rd May 2017

Empowering Lives Globally !

PROJECT REPORT

A report submitted in partial fulfillment of the requirements for the

Project

School of Computer Science & Engineering

By

Siddharth Patil
PRN No: 22SC114281038
Anushka Nevgi
PRN No: 22SC114281941
Yashodip Randive
PRN No: 22SC114281049
Prajakta Sawant
PRN No: 22SC114281051

Program: B. Tech

Class: FY B. Tech (Div. A)

Under Supervision of

Mrs. Veena Mali

Academic Year: 2022-2023

Sanjay Ghodawat University Kolhapur

Established as a State Private University under Govt. of Maharashtra Act No. XL dated 3rd May 2017

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CERTIFICATE

This is to certify that the "**Project Report**"

On

"Student Placement Statistics"

submitted by

Siddharth Patil
PRN No: 22SC114281038
Anushka Nevgi
PRN No: 22SC114281041
Yashodip Randive
PRN No: 22SC114281049
Prajakta Sawant
PRN No: 22SC114281051

Program: B. Tech CSE Class: FY B. Tech (Div. A)

is work done by him/her and submitted during the 2022 – 2023 academic year, in partial fulfillment of the **Project.**

Sanjay Ghodawat University, Kolhapur

15/6/23			
Mrs. Veena Mali	**Ms. Deepika Patil**	**Dr. B. Suresh Kumar**	
Project Guide	**PBL Co-ordinator**	**Head, SOCSE**	**External**

DECLARATION

I the undersigned solemnly declare that the report of the project work entitled **"Student Placement Statistics"** which is carried out under the supervision of **Mrs. Veena Mali.** I assert that the statements made and conclusions drawn are an outcome of the project work. I further declare that to the best of my knowledge and belief that the project report does not contain any part of any work which has been submitted for the award of any other degree/diploma/certificate in this University or any other University.

Student Name:

Siddharth Patil
PRN No: 22SC114281038 Roll No: 34

Anushka Nevgi
PRN No: 22SC114281041 Roll No: 37

Yashodip Randive
PRN No: 22SC114281049 Roll No: 44

Prajakta Sawant
PRN No: 22SC114281051 Roll No: 46

Class: FY B. Tech (Div. A)

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ABSTRACT

The aim of this project was to develop a C graphics program that facilitates polling among various company names offering placements to the students of a particular university and presents the polling results in the form of a graph. The project involved designing an interactive user interface, implementing efficient data management techniques, and generating graphical representations of the voting outcomes. The project started by creating a user-friendly interface that allowed students to cast their votes easily and efficiently. Input validation mechanisms were incorporated to ensure the correctness of company names and prevent duplicate votes.

The graphical representation of the polling results was achieved by generating suitable graphs based on the collected votes. Different graph types, such as bar graphs or pie charts, were considered to visualize the distribution of votes among different companies. The generated graph provided a clear and comprehensive view of the voting outcomes, aiding in the analysis and interpretation of the results. Throughout the development process, emphasis was placed on user experience, performance, and security. The program's user interface was designed to be intuitive, allowing smooth interaction with the system. Input validation and error handling were implemented to ensure data integrity.

In conclusion, this C graphics project successfully addressed the problem of polling among various company names for placements in a particular university. By implementing an intuitive user interface, efficient data management techniques, and graphical representation of the results, the project achieved its objectives. The skills gained during the project, including programming, data management, and graphical representation, will be valuable for future applications in computer graphics and software development.

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Introduction

- **Introduction**

The education industry is always on the lookout for ways to improve the student outcomes and ensure their successful post-graduation employment. One way to measure success is through student placement statistics a Graphics C project which will help us generate the graph comparing placements percentage of various companies which hire in Sanjay Ghodawat University.

It shows the percentage of students or the companies who secure employment in their field of study after graduation. In this context, a graphics project on student placement statistics and graph generator in C can be a useful tool for analyzing and visualizing this data.

The purpose of this graphics project is to create a simple and user-friendly system that can input student placement statistics and generate different types of graphs. By analyzing the data through graphs, it will be easier to identify trends and patterns in student placements, as well as compare the success rates of different academic programs.

Students can use this data to make informed decisions about which programs to enroll in, based on the success rates of past graduates. Moreover, the project's use of C language for developing a graph generator provides an opportunity to practice various programming concepts, such as file input/output, data structures, and graphics libraries.

It is an excellent way for students and aspiring programmers to gain hands-on experience with the C programming language and learn how to develop a useful application.

In conclusion, this graphics project on student placement statistics and graph generator in C can be a valuable tool for educational institutions, career services, and students, providing an easy-to-use system for analyzing and visualizing student placement data. Moreover, it presents an excellent opportunity to practice programming skills and gain practical experience in software development.

- **Problem Definition:**

The "Student Placement Statistics and Graph Generator" is a C graphics project that aims to streamline the polling process among various company names for student placements in a specific university. The project will utilize graphics libraries to create an interactive user interface and visually represent the polling results through a graph.

The purpose of this project is to develop a C graphics program that facilitates the polling process among various company names offering placements to the students of a particular university. The project aims to address the following challenges:

- Polling Efficiency: The traditional method of polling and collecting data manually is time-consuming and prone to errors. The project aims to automate the polling process to improve efficiency and accuracy.
- Data Analysis: Gathering and analyzing polling data is crucial to understanding student preferences for different companies. The project will focus on collecting and analyzing votes to provide valuable insights into the popularity of companies among students.
- Visualization of Results: Presenting the polling results in a visually appealing manner is essential for better comprehension. The project will generate a graph that effectively represents the voting data, allowing users to interpret the results easily.
- User Interaction: Creating a user-friendly interface is important to ensure a seamless experience for users. The project will provide an intuitive interface for casting votes and viewing the graph, making it accessible to users with varying levels of technical expertise.

Overall, the project aims to streamline the polling process, enhance data analysis, and visually represent the polling results through an interactive graphical interface. The project report will provide a comprehensive overview of the project's objectives, implementation details, and outcomes, contributing to the understanding of student placement preferences and informing decision-making processes related to student placements.

- **Scope:**

The scope of the project includes the development of a C graphics program that facilitates polling among various company names offering placements to the students of a particular university. The project aims to generate a graph based on the polling results, providing a visual representation of the data. The key components and features within the scope of the project are as follows:

- User Interface: The project will include a graphical user interface (GUI) that allows users to interact with the program. The GUI will provide options to input and select company names, cast votes, and view the polling results.
- Company Database: The project will require a database or data structure to store and manage the list of company names offering placements. This database will be used for displaying the available options during the polling process.
- Polling System: The program will implement a polling system where users can cast their votes for the company of their choice. It will handle the vote counting process and update the polling results accordingly.
- Graph Generation: The project will incorporate a graph generation mechanism to represent the polling results visually. It will use appropriate graphical elements and techniques to display the voting percentages or counts for each company in the form of a graph.
- Data Validation and Error Handling: The program will include validation mechanisms to ensure the correctness and integrity of user inputs. It will handle potential errors, such as invalid inputs or attempts to manipulate the voting process.
- Result Display: The final output of the project will be the display of the polling results in the form of a graph. The graph will provide a clear visualization of the voting distribution among different companies.
- Usability and User Experience: The project will prioritize usability and provide a user-friendly interface for easy interaction. It should be intuitive and visually appealing to enhance the user experience.

- **Problem Identification:**

1. Polling Process: Designing an efficient and user-friendly polling process that allows students to cast their votes for the companies of their choice while ensuring the integrity and fairness of the polling system.
2. Data Management: Implementing a suitable data structure or database to store and manage the list of company names and their corresponding vote counts. Ensuring efficient retrieval and updating of data during the polling process.
3. Graphical Representation: Developing a mechanism to generate a graph that accurately represents the polling results. Determining the appropriate graph type (bar graph, pie chart, etc.) and designing the graph to provide a clear visualization of the voting distribution among different companies.
4. User Interface: Creating an intuitive and user-friendly graphical user interface (GUI) that allows users to easily interact with the program. Ensuring proper input validation and error handling to provide a seamless user experience.
5. Data Validation: Implementing mechanisms to validate user inputs, such as verifying the correctness of company names, preventing duplicate votes, and handling potential errors or invalid inputs.
6. Result Calculation: Developing an algorithm to calculate the voting percentages or counts for each company based on the collected votes. Ensuring accurate and reliable calculation to generate correct polling results.
7. Usability and Performance: Optimizing the program's performance to handle a large number of votes efficiently. Ensuring the program is responsive and capable of generating the graph in a timely manner, even with a significant amount of data.
8. Error Handling and Exceptional Cases: Anticipating and addressing potential exceptional cases, such as unexpected program termination, data corruption, or system errors. Implementing robust error handling mechanisms to prevent data loss or inconsistencies.
9. Security and Fairness: Ensuring the security and fairness of the polling process by preventing unauthorized access, protecting the integrity of the data, and avoiding any biases or manipulation in the voting system.
10. Testing and Debugging: Conducting thorough testing to identify and fix any bugs, errors, or inconsistencies in the program. Ensuring the program functions as intended and produces accurate polling results and graphs.

These problem identification points provide an overview of the key challenges and considerations that needed to be addressed during the development of our C graphics project.

Objectives

The objectives of our project, 'Student Placement Statistics' are as follows:

1. To develop a user-friendly system that can input student placement statistics data and generate different types of graphs for analysis.
2. To create a reliable data storage system that can handle the input data efficiently and store it in an organized manner for later retrieval.
3. To design a user interface that is simple and intuitive for users of all skill levels to input and manipulate data.
4. To utilize C programming language and appropriate libraries to implement the system with a focus on efficiency and performance.
5. To incorporate error handling features that will detect and report any input errors, file reading/writing errors, and other runtime issues that may occur during use.
6. To provide useful documentation and help resources that will guide users through the system's features and functionalities.
7. To ensure that the system is robust and can handle large datasets, multiple input and output formats, and varied user requirements.
8. To test the system thoroughly to ensure that it produces accurate, informative, and visually appealing graphs that accurately represent student placement statistics data.
9. To create a project that can serve as a foundation for future development and improvements, such as additional features and capabilities or integrations with other systems.
10. To gain practical experience with C programming language and graphics library while working on a practical and useful project that can be used in real-world scenarios.

System Requirements Specification

- **Software Requirement:**
  - Turbo C
  - Microsoft Visual Studio Code
  - Dev C++ with graphics library installed
- **Hardware Requirement**
  - Computer or laptop
  - Intel(R) Core(TM) i3-Processor minimum
  - RAM- 4 GB minimum
  - Storage- 256GB minimum

Methodology

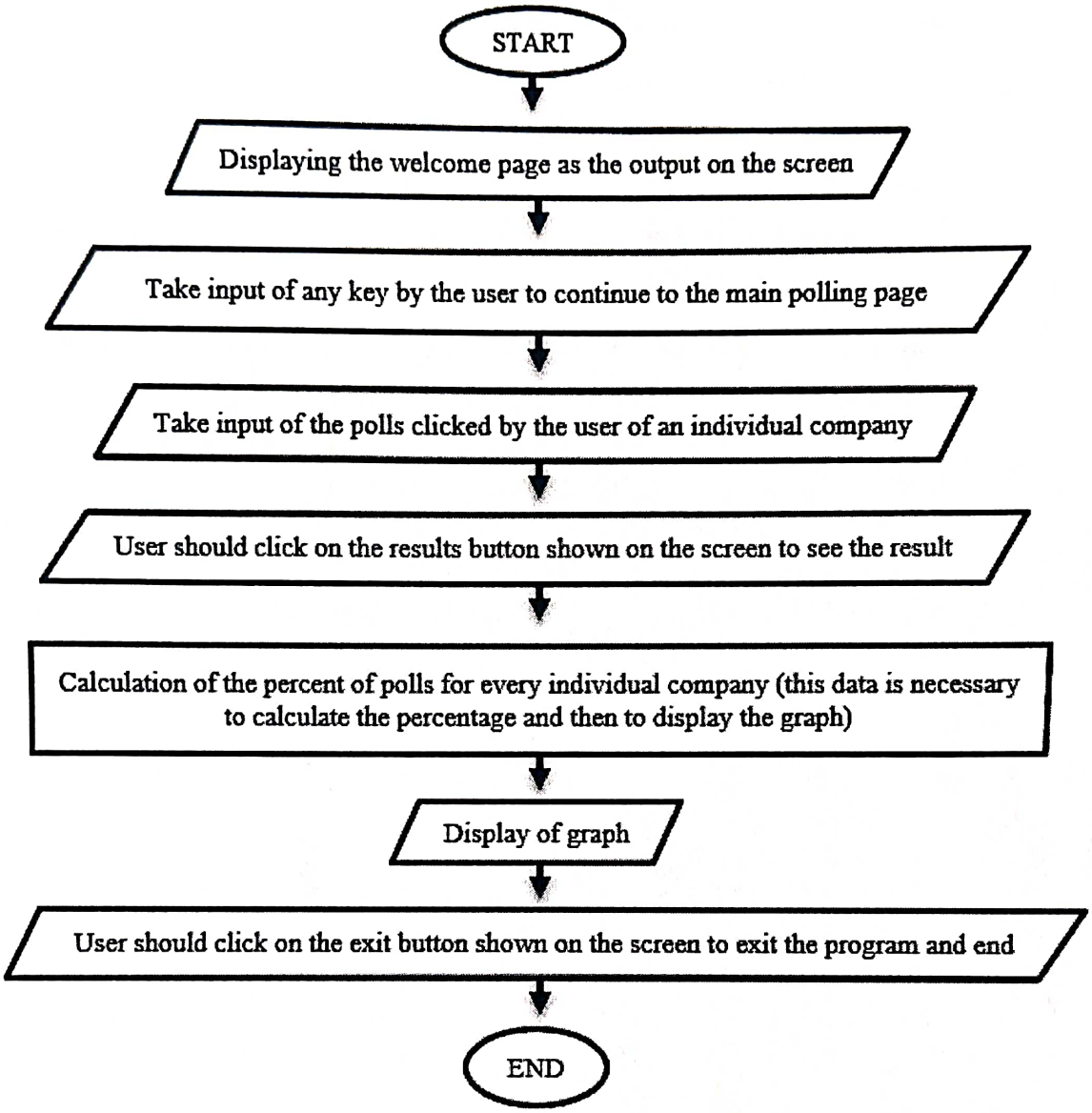
- **Algorithm:**

  - Include the required header files.
  - Declare global variables to hold the number of polls for each company.
  - Define functions to initialize the mouse pointer, show the pointer, restrict the pointer to the screen, get the pointer position, draw the Student Placement Statistics layout, display the result as a graph, and display a welcome message.

  - Following is the main algorithm of our program:

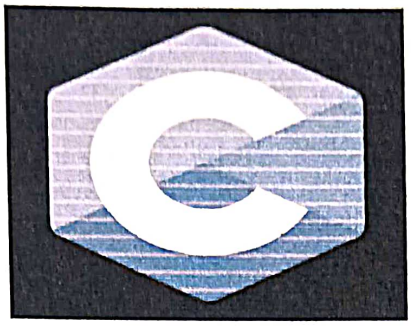
    Step 1: Start: Initialize the graphics mode.
    Step 2: Draw the boundary.
    Step 3: Display the welcome message.
    Step 4: Clear the screen.
    Step 5: Draw the Student Placement Statistics layout.
    Step 6: Show the mouse pointer.
    Step 7: Restrict the mouse pointer to the program's screen.
    Step 8: Enter a loop to wait for the user to click on a company's button.
    Step 9: When a company's button is clicked, register the vote for that candidate, play a sound, and update the poll count.
    Step 10: When the exit button is clicked, exit the loop and display the result in the form of a graph.
    Step 11: Exit the program when a key is pressed.

- **Flow Diagram (Flow Chart):**



Implementation

1. Set up the graphical environment using C graphics libraries.
2. Create a user interface to collect company names and student preferences.
3. Store the polling data in appropriate data structures for analysis.
4. Perform vote counting to determine the popularity of each company.
5. Design a graph representation (e.g., bar graph, pie chart) for visualization.
6. Map the voting data to graphical elements, such as bars or sectors.
7. Add labels and legends to provide context and clarity to the graph.
8. Implement interactivity features, if desired (e.g., zooming, highlighting).
9. Render the graph on the screen using graphical primitives and functions.
10. Ensure proper resource management and program termination.



"Introduction of C Programming"

Programming and Programming Languages:

The native language of a computer is binary—ones and zeros—and all instructions and data must be provided to it in this form. Native binary code is called machine language. The earliest digital electronic computers were programmed directly in binary, typically via punched cards, plug-boards, or front-panel switches. Later, with the advent of terminals with keyboards and monitors, such programs were written as sequences of hexadecimal numbers, where each hexadecimal digit represents a four binary digit sequence. Developing correct programs in machine language is tedious and complex, and practical only for very small programs.

In order to express operations more abstractly, assembly languages were developed. These languages have simple mnemonic instructions that directly map to a sequence of machine language operations. For example, the MOV instruction moves data into a register, the ADD instruction adds the contents of two registers together. Programs written in assembly language are translated to machine code using an assembler program. While assembly languages are a considerable improvement on raw binary, they still very low-level and unsuited to large-scale programming. Furthermore, since each processor provides its own assembler dialect, assembly language programs tend to be non-portable; a program must be rewritten to run on a different machine.

The 1950s and 60s saw the introduction of high-level languages, such as Fortran and Algol. These languages provide mechanisms, such as subroutines and conditional looping constructs, which greatly enhance the structure of a program, making it easier to express the progression of instruction execution; that is, easier to visualize program flow. Also, these mechanisms are an abstraction of the underlying machine instructions and, unlike assembler, are not tied to any particular hardware. Thus, ideally, a program written in a high-level language may be ported to a different machine and run without change. To produce executable code from such a program, it is translated to machine-specific assembler language by a compiler program, which is then converted to machine code by an assembler (see Appendix B for details on the compilation process).

Compiled code is not the only way to execute a high-level program. An alternative is to translate the program on-the-fly using an interpreter program (e.g., Matlab, Python, etc).

Given a text-file containing a high-level program, the interpreter reads a high-level instruction and then executes the necessary set of low-level operations. While usually slower than a compiled program, interpreted code avoids the overhead of compilation-time and so is good for rapid implementation and testing.

Another alternative, intermediate between compiled and interpreted code, is provided by a virtual machine (e.g., the Java virtual machine), which behaves as an abstract-machine layer on top of a real machine. A high-level program is compiled to a special byte-code rather than machine language, and this intermediate code is then interpreted by the virtual machine program.

Interpreting byte code is usually much faster than interpreting high-level code directly. Each of these representations has been relative advantages: compiled code is typically fastest, interpreted code is highly portable and quick to implement and test, and a virtual machine offers a combination of speed and portability. The primary purpose of a high-level language is to permit more direct expression of a programmer's design. The algorithmic structure of a program is more apparent, as is the flow of information between different program components. High-level code modules can be designed to —plugl together piece-by-piece, allowing large programs to be built out of small, comprehensible parts. It is important to realize that programming in a high-level language is about communicating a software design to programmers not to the computer. Thus, a programmer's focus should be on modularity and readability rather than speed. Making the program run fast is (mostly) the compiler's concern.

The C Programming Language:

C is a general-purpose programming language, and is used for writing programs in many different domains, such as operating systems, numerical computing, graphical applications, etc. It is a small language, with just 32 keywords (see [HS95, page 23]). It provides —high-levell structured-programming constructs such as statement grouping, decision making, and looping, as well as —low-levell capabilities such as the ability to manipulate bytes and addresses. Since C is relatively small, it can be described in a small space, and learned quickly. A programmer can reasonably expect to know and understand and indeed regularly use the entire language [KR88, page 2].

C achieves its compact size by providing spartan services within the language proper, foregoing many of the higher-level features commonly built-in to other languages. For example, C provides no operations to deal directly with composite objects such as lists or arrays. There are no memory management facilities apart from static definition and stack-allocation of local variables. And there are no input/output facilities, such as for printing to the screen or writing to a file. Much of the functionality of C is provided by way of software routines called functions. The language is accompanied by a standard library of functions that provide a collection of commonly- used operations. For example, the standard function printf() prints text to the screen (or, more precisely, to standard output—which is typically the screen). The standard library will be used extensively throughout this text; it is important to avoid writing your own code when a correct and portable implementation already exists

Advantages of learning C:

- It is a powerful language: C is a powerful language that can be used to develop applications for a wide variety of tasks, such as creating operating systems, programming embedded systems, creating device drivers, and creating software for graphical user interfaces.

- It is an efficient language: C is an efficient language as it allows developers to write code that is both fast and small. This makes it ideal for applications that require both speed and size.

- It is a portable language: C is a portable language, which means that programs written in C can be compiled and run-on different platforms without making any changes to the code.

- It is a structured language: C is a structured language, which means that code can be written in a way that is easier to read, understand, and maintain. This is beneficial for larger applications. 5. It is an object-oriented language: C is an object-oriented language, which means that code can be written in a way that is easier to maintain and extend. This is important for applications that are expected to grow over time.

Source Code:

```
#include<stdio.h>  // HEADER FILE FOR STANDARD I/0
#include<graphics.h> // HEADER FILE FOR GRAPHICS MODE
#include<dos.h>    //  HEADER FILE FOR ENABLING SOUND
#include<conio.h>  // HEADER FILE FOR CONSOLE I/O
#include<stdlib.h> // HEADER FILE FOR LIBRARY FUNCTIONS
union REGS i,o;
int initmouse();       // FUNCTION TO INITIALIZE MOUSE POINTER
void showmouseptr();   // FUNCTION TO SHOW POINTER
void restrictmouseptr(int,int,int,int); // FUNCTION TO RESTRICT POINTER
void getmousepos(int *,int *,int *); // TO GET POINTER POSITION
void format();     // FUNCTION TO DRAW LAYOUT
void graph();      // FUNCTION TO DISPLAY RESULT AS GRAPH
void welcome();    // FUNCTION TO DISPLAY WELCOME MESSAGE
void boundry();
int vote1=0,vote2=0,vote3=0,vote4=0,vote5=0;  // VARIABLES TO HOLD VOTES FOR
COMPANIES
int button,x,y;
void main() {
   int  gd=DETECT,gm;
        initgraph(&gd,&gm,"c:\\turboc3\\bgi");  // INITIALIZING GRAPHICS MODE
   randomize();
   boundry();
   welcome();              // CALLING WELCOME FUNCTION
   cleardevice();          // CLEARING THE SCREEN
   format();              // CALLING FORMAT FUNCTION
   showmouseptr();
   restrictmouseptr(0,0,675,435);    // RESTRICTING MOUSE POINTER WITHIN SCREEN
        do {
                getmousepos(&button,&x,&y);
                if((button&1)==1&&x>475&&x<580&&y>250&&y<280) {
                        break; }
                else if((button&1)==1&&x>280&&x<380&&y>105&&y<125) {
                        setcolor(RED);circle(270,115,5);
                        sound(1200);
                        delay(500);
                        nosound();
                        setcolor(BLACK);circle(270,115,5);
                        vote1++;  }
                else if((button&1)==1&&x>280&&x<380&&y>155&&y<175) {
                        setcolor(RED);circle(270,165,5);
                        sound(1200);
                        delay(500);
                        nosound();
                        setcolor(BLACK);circle(270,165,5);
                        vote2++;   }
                 else if((button&1)==1&&x>280&&x<380&&y>205&&y<225) {
                        setcolor(RED);circle(270,215,5);
                        sound(1200);
```

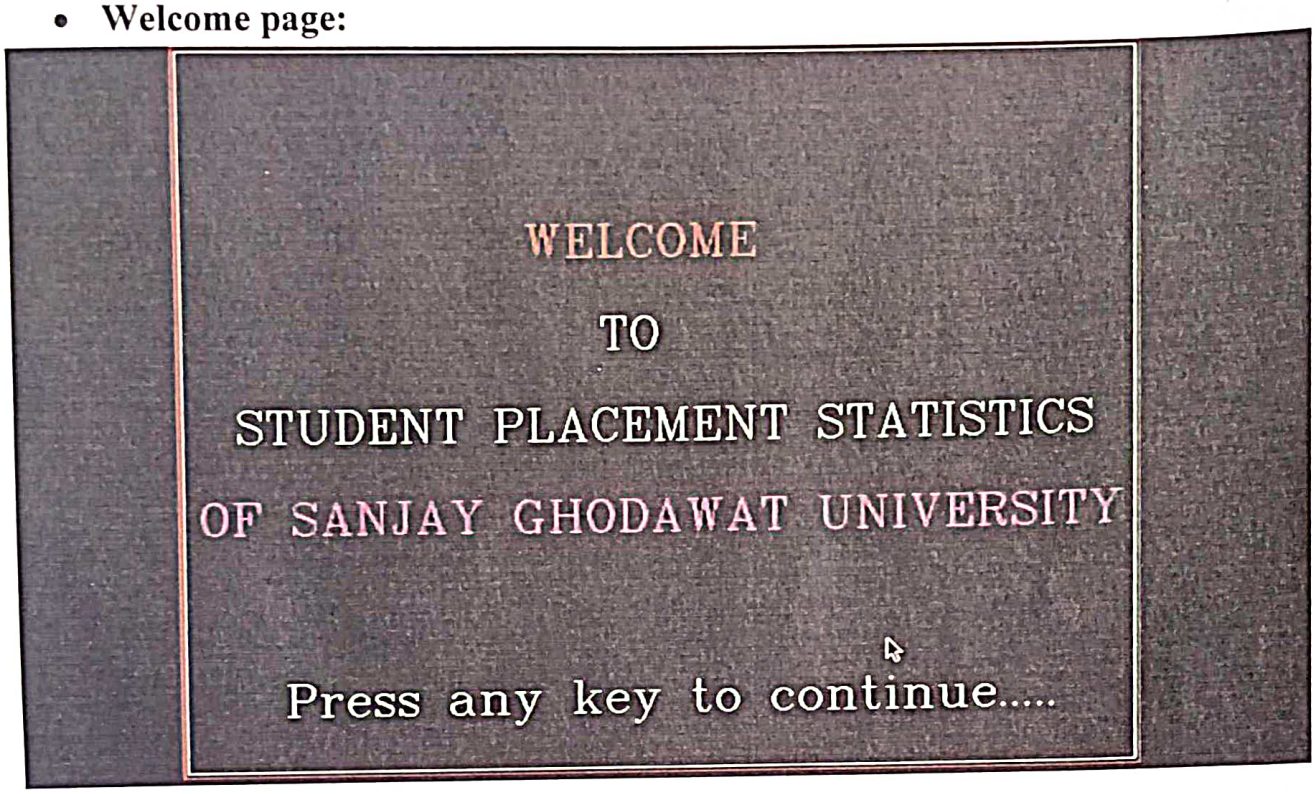
```
                    delay(500);
                    nosound();
                    setcolor(BLACK);circle(270,215,5);
                    vote3++; }
               else if((button&1)==1&&x>280&&x<380&&y>255&&y<275) {
                    setcolor(RED);circle(270,265,5);
                    sound(1200);
                    delay(500);
                    nosound();
                    setcolor(BLACK);circle(270,265,5);
                    vote4++; }
               else if((button&1)==1&&x>280&&x<380&&y>305&&y<325) {
                    setcolor(RED);circle(270,315,5);
                    sound(1200);
                    delay(500);
                    nosound();
                    setcolor(BLACK);circle(270,315,5);
                    vote5++;  } }          // END OF DO
        while(1);
        cleardevice();
        initmouse();
        showmouseptr();
        boundry();
        graph();
        getch(); }              // END OF MAIN FUNCTION
void boundry() {
        setcolor(1+random(14));
   rectangle(0,0,635,475);
   setcolor(1+random(14));
   rectangle(3,3,632,472); }
void welcome() {
        randomize();
  settextstyle(8,0,4);
  setcolor(1+random(14));
  outtextxy(230,100,"WELCOME");
  delay(800);
  setcolor(1+random(14));
  outtextxy(280,160,"TO");
  delay(800);
  setcolor(1+random(14));
  outtextxy(40,220,"STUDENT PLACEMENT STATISTICS");
  delay(800);
  setcolor(1+random(14));
  outtextxy(15,280,"OF SANJAY GHODAWAT UNIVERSITY");
  delay(800);
  while(!kbhit()) {
              setcolor(1+random(14));
       outtextxy(70,400,"Press any key to continue.....");
       delay(500);
       setcolor(BLACK);
```

```
        outtextxy(70,400,"Press any key to continue.....");
        delay(500); } }
void format() {
        setcolor(6);
   rectangle( 90,30,400,380);
   rectangle( 87,27,403,383);
   settextstyle(0,0,5);
   outtextxy(140,40,"Names: ");
   line(90,80,400,80);
   settextstyle(8,0,2);

   outtextxy(100,100,"L&T");
   rectangle(95,100,250,130);
   arc(290,115,90,270,10);
   arc(370,115,270,90,10);
   line(290,105,370,105);
   line(290,125,370,125);

   outtextxy(100,150,"TCS");
   rectangle(95,150,250,180);
   arc(290,165,90,270,10);
   arc(370,165,270,90,10);
   line(290,155,370,155);
   line(290,175,370,175);

   outtextxy(100,200,"WIPRO");
   rectangle(95,200,250,230);
   arc(290,215,90,270,10);
   arc(370,215,270,90,10);
   line(290,205,370,205);
   line(290,225,370,225);

   outtextxy(100,250,"TATA");
   rectangle(95,250,250,280);
   arc(290,265,90,270,10);
   arc(370,265,270,90,10);
   line(290,255,370,255);
   line(290,275,370,275);

   outtextxy(100,300,"HCL");
   rectangle(95,300,250,330);
   arc(290,315,90,270,10);
   arc(370,315,270,90,10);
   line(290,305,370,305);
   line(290,325,370,325);

   rectangle(475,250,580,280);
   outtextxy(480,250,"STATS: ");
   outtextxy(150,400,"Guided by: Mrs. Veena Mali"); }
void showmouseptr() {
```

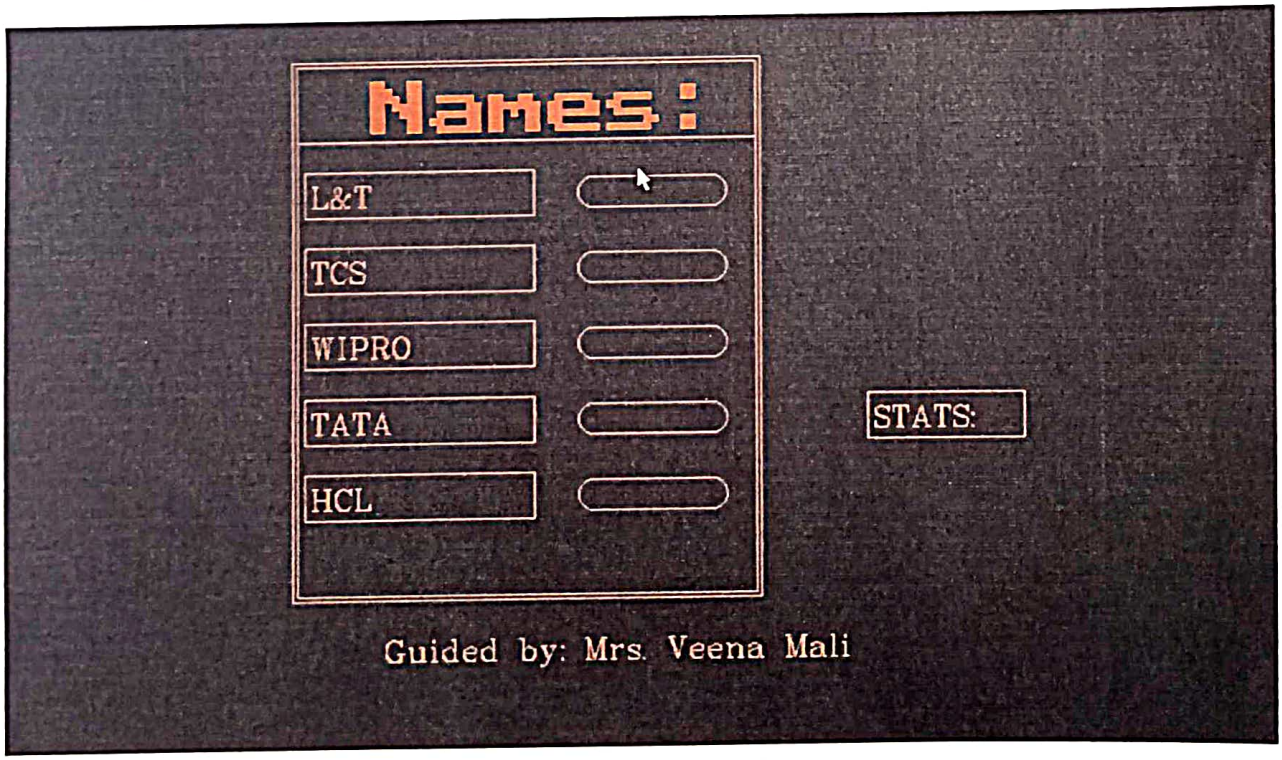
```
        i.x.ax=1;
        int86(0x33,&i,&o); }
void restrictmouseptr(int x1, int y1, int x2, int y2) {
        i.x.ax=7;
   i.x.cx=x1;
   i.x.dx=x2;
   int86(0x33,&i,&o);
   i.x.ax=8;
   i.x.cx=y1;
   i.x.dx=y2;
   int86(0x33,&i,&o); }
void getmousepos(int *button, int *x, int *y) {
        i.x.ax=3;
   int86(0x33,&i,&o);
   *button=o.x.bx;
   *x=o.x.cx;
   *y=o.x.dx; }
void graph() {
   int company1=((vote1*100)/(vote1+vote2+vote3+vote4+vote5));
   int company2=((vote2*100)/(vote1+vote2+vote3+vote4+vote5));
   int company3=((vote3*100)/(vote1+vote2+vote3+vote4+vote5));
   int company4=((vote4*100)/(vote1+vote2+vote3+vote4+vote5));
   int company5=((vote5*100)/(vote1+vote2+vote3+vote4+vote5));
   outtextxy(210,100,"STATISTICS(in %)");
   setcolor(2);
   rectangle(100,300,130,300-company1);outtextxy(100,300,"L&T");
   rectangle(200,300,230,300-company2);outtextxy(200,300,"TCS");
   rectangle(300,300,330,300-company3);outtextxy(300,300,"WIPRO");
   rectangle(400,300,430,300-company4);outtextxy(400,300,"TATA");
   rectangle(500,300,530,300-company5);outtextxy(500,300,"HCL");
   setcolor(1+random(14));
   rectangle(545,400,600,430);
   outtextxy(550,400,"EXIT");
   do {
                getmousepos(&button,&x,&y);
                if((button&1)==1&&x>545&&x<600&&y>400&&y<430) {
                        break; }  }          // END OF DO
        while(1); }
initmouse() {
        i.x.ax=0;
        int86(0x33,&i,&o);
        return(o.x.ax);
}
```

Result

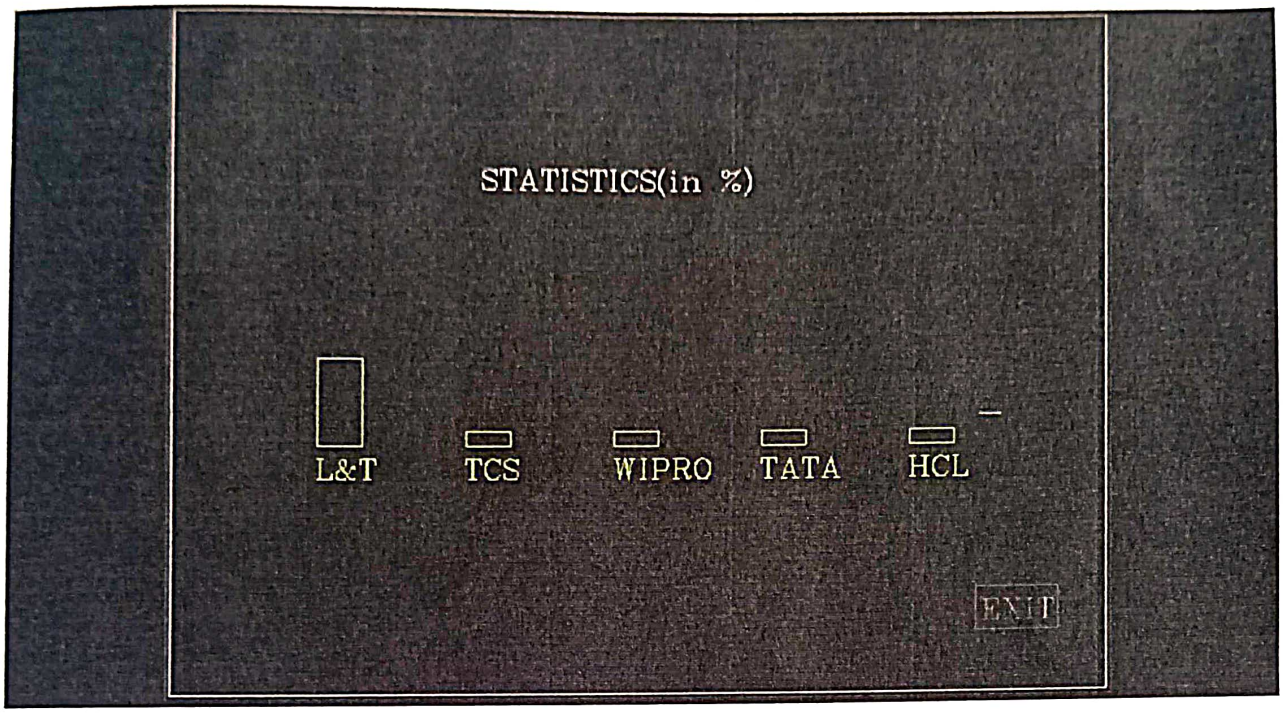
- **Welcome page:**



- **Page to vote for the companies:**



- **Final output of graph page:**



Conclusion & Future Scope

- **Future Scope:**

1. Dynamic Updates: Implement a feature that allows real-time updates of polling results as votes are being cast. This would provide an interactive experience to users and keep them engaged throughout the polling process.
2. Enhanced Visualization: Explore additional graph types and visualization techniques to present the polling results. This could include stacked bar graphs, line graphs, or interactive charts that allow users to drill down into specific details.
3. Advanced Data Analysis: Integrate statistical analysis tools to perform in-depth analysis of the polling results. This could involve calculating percentages, generating trend analysis, and identifying popular companies or patterns among students' preferences.
4. Security Measures: Implement robust security measures to ensure the authenticity and confidentiality of the polling process. This may include user authentication, encryption of sensitive data, and protection against potential threats such as vote manipulation.
5. Integration with Database Systems: Integrate the polling system with a database management system to handle larger datasets efficiently. This would enable scalability and better data management capabilities, especially for universities with a large number of students and participating companies.
6. Feedback Mechanism: Introduce a feedback mechanism that allows students to provide comments or suggestions regarding the participating companies. This would provide valuable insights for both students and the university in assessing the effectiveness of the placement process.
7. Mobile Application Development: Consider developing a mobile application version of the polling system to cater to the increasing usage of mobile devices among students. This would enhance accessibility and convenience, allowing students to participate in the polls anytime, anywhere.

By considering these future scope points, the project can be further expanded and enhanced to meet the evolving needs of the university and its students in the field of placements.

Overall, the project provided a solid foundation in C graphics programming and offered opportunities for further innovation and improvement. The experience gained from this project will be valuable in future endeavors in the field of software development, data analysis, and user interface design.

- **Conclusion:**

In conclusion, the objective of this project was to develop a C graphics program that facilitates polling among various company names offering placements to the students of a particular university and presents the polling results in the form of a graph. Throughout the development process, several key aspects were addressed to achieve the project's goals.

Firstly, a user-friendly polling process was designed, allowing students to cast their votes easily and efficiently. Input validation mechanisms were implemented to ensure the correctness of company names and prevent duplicate votes. The polling system was carefully constructed to maintain integrity and fairness, providing a reliable platform for students to express their preferences.

To manage the data effectively, a suitable data structure or database was employed to store the company names and their corresponding vote counts. This enabled efficient retrieval and updating of data during the polling process, ensuring accurate and up-to-date results.

The graphical representation of the polling results was achieved by generating appropriate graphs based on the collected votes. The chosen graph type, whether it be a bar graph, pie chart, or another form, provided a clear visualization of the voting distribution among different companies. The generated graph successfully conveyed the outcome of the polling process, aiding in the analysis and interpretation of the results.

The user interface was designed to be intuitive and user-friendly, enhancing the overall user experience. Attention was given to proper input validation and error handling to provide a seamless interaction with the program. The program was optimized to handle a large number of votes efficiently, ensuring a responsive and timely generation of the graph even with significant data.

In conclusion, this project successfully addressed the problem of polling among various company names for placements in a particular university. By implementing an efficient polling process, managing data effectively, and providing graphical representation of the results, the project achieved its objectives. The program's usability, performance, security, and fairness were considered, resulting in a robust and reliable system.

However, it is important to acknowledge that there may be areas for further improvement. Future enhancements could include additional features such as data analysis tools, result comparisons, or enhanced security measures. Conducting thorough testing and gathering user feedback will aid in identifying any potential issues and opportunities for refinement.

Overall, this project provided valuable insights into the development of a C graphics program for polling and graph generation. The skills acquired during this project, including programming, data management, and graphical representation, will be beneficial for future endeavors in computer graphics and software development.

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