



Theory Assignment Report

Only for course Teacher						
		Needs Improvement	Developing	Sufficient	Above Average	Total Mark
Allocate mark & Percentage		25%	50%	75%	100%	5
Clarity	1					
Content Quality	2					
Spelling & Grammar	1					
Organization and Formatting	1					
Total obtained mark						
Comments						

Semester: Fall-2023

Student Name: Enamul Hakim Khan

Student ID: 0242220005341127

Batch: 39 Section: A

Course Code: SE133 Course Name: Software Development Capstone Project

Course Teacher Name: MD. SHOHEL ARMAN

Designation: Assistant Professor

Submission Date: 18/11/2023

1. Print all natural numbers from 1 to n.

```
#include <stdio.h>
```

```
int main() {
    int n;
    printf("Enter the value of n: ");
    scanf("%d", &n);

    for (int i = 1; i <= n; i++) {
        printf("%d ", i);
    }

    return 0;
}
```

The screenshot shows a code editor interface with a dark theme. The left sidebar has an 'EXPLORER' section showing a file tree with files like 'Calculation.java', 'Car.java', 'Mycalculation.java', 'Vehicle.java', 'problem2.java', 'test.js', 'problem1.c', 'tempCodeRunnerFile.c', and 'tempCodeRunnerFilee'. The main area displays the following C code:

```
#include <stdio.h>
int main() {
    int n;
    printf("Enter the value of n: ");
    scanf("%d", &n);

    for (int i = 1; i <= n; i++) {
        printf("%d ", i);
    }

    return 0;
}
```

Below the code, a terminal window is open with the following command and output:

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston"
if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile }
Enter the value of n: 2
1 2
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

2. Print sum of even numbers between 1 to n.

```
#include <stdio.h>
```

```
int main() {
    int n, sum = 0;
    printf("Enter the value of n: ");
```

```

scanf("%d", &n);

for (int i = 2; i <= n; i += 2) {
    sum += i;
}

printf("Sum of even numbers from 1 to %d: %d\n", n, sum);

return 0;
}

```

```

1 #include <stdio.h>
2
3 int main() {
4     int n, sum = 0;
5     printf("Enter the value of n: ");
6     scanf("%d", &n);
7
8     for (int i = 2; i <= n; i += 2) {
9         sum += i;
10    }
11
12    printf("Sum of even numbers from 1 to %d: %d\n", n, sum);
13
14    return 0;
15}
16

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston\" ; if (\$?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (\$?) { .\tempCodeRunnerFile }
Enter the value of n: 3
Sum of even numbers from 1 to 3: 2
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>

3.Print sum of even numbers in given range.

```
#include <stdio.h>
```

```

int main() {
    int start, end, sum = 0;
    printf("Enter the range (start end): ");
    scanf("%d %d", &start, &end);

    for (int i = start; i <= end; i++) {
        if (i % 2 == 0) {

```

```

        sum += i;
    }
}

printf("Sum of even numbers in the range %d to %d: %d\n", start, end, sum);

return 0;
}

```

```

File Edit Selection View Go Run Terminal Help ← → A Java practise
J Calculation.java J cal1.java J Mycalculation.java J Vehicle.java J problem2.java JS test.js O test.html C problem1.c X J Car.java J Student.java
ooooooooooooooo
Calculation.java
oop > Capston > C problem1.c > main()
1 #include <stdio.h>
2
3 int main() {
4     int start, end, sum = 0;
5     printf("Enter the range (start end): ");
6     scanf("%d %d", &start, &end);
7
8     for (int i = start; i <= end; i++) {
9         if (i % 2 == 0) {
10             sum += i;
11         }
12     }
13
14     printf("Sum of even numbers in the range %d to %d: %d\n", start, end, sum);
15
16     return 0;
}
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston\" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { ./tempCodeRunnerFile }
Enter the range (start end):

```

4. Print all odd numbers from 1 to n.

```
#include <stdio.h>
```

```

int main() {
    int n;
    printf("Enter the value of n: ");
    scanf("%d", &n);

    for (int i = 1; i <= n; i += 2) {
        printf("%d ", i);
    }
}

```

```

    return 0;
}

File Edit Selection View Go Run Terminal Help ← → A java practise
J Calculation.java J cal1.java J MycalculationJava J Vehicle.java J problem2.java JS test.js O test.html C problem1.c X J Car.java J Student.java D v S ...
oop > Capston > C problem1.c > main()
1 #include <stdio.h>
2
3 int main() {
4     int n;
5     printf("Enter the value of n: ");
6     scanf("%d", &n);
7
8     for (int i = 1; i <= n; i += 2) {
9         printf("%d ", i);
10    }
11
12    return 0;
13}
14

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```

PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
Enter the value of n: 3
1 3
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>

```

5. Print odd numbers in given range.

```

#include <stdio.h>

int main() {
    int start, end;
    printf("Enter the range (start end): ");
    scanf("%d %d", &start, &end);

    for (int i = start; i <= end; i++) {
        if (i % 2 != 0) {
            printf("%d ", i);
        }
    }

    return 0;
}

```

A screenshot of a terminal window titled "A java practise". The window shows the following code in a C file:

```
1 #include <stdio.h>
2
3 int main() {
4     int start, end;
5     printf("Enter the range (start end): ");
6     scanf("%d %d", &start, &end);
7
8     for (int i = start; i <= end; i++) {
9         if (i % 2 != 0) {
10             printf("%d ", i);
11         }
12     }
13
14     return 0;
15 }
16
```

The terminal output shows the command to compile and run the code, followed by the user input "2 3" and the resulting output "3".

6.Print all factors of a number.

```
#include <stdio.h>
```

```
int main() {
    int num;
    printf("Enter a number: ");
    scanf("%d", &num);

    printf("Factors of %d are: ", num);
    for (int i = 1; i <= num; i++) {
        if (num % i == 0) {
            printf("%d ", i);
        }
    }

    return 0;
}
```

The terminal window shows the following command and its output:

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston\" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { ./tempCodeRunnerFile }
Enter a number: 6
Factors of 6 are: 1 2 3 6
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

7. Print sum of odd numbers from 1 to n.

```
#include <stdio.h>
```

```
int main() {
    int n, sum = 0;
    printf("Enter the value of n: ");
    scanf("%d", &n);

    for (int i = 1; i <= n; i += 2) {
        sum += i;
    }

    printf("Sum of odd numbers from 1 to %d: %d\n", n, sum);

    return 0;
}
```

The screenshot shows a code editor interface with a terminal window below it. The code editor has tabs for various files like Calculation.java, cal1.java, Mycalculation.java, Vehicle.java, problem2.java, test.js, test.html, problem1.c, Car.java, and Student.java. The active tab is problem1.c. The code in problem1.c is:

```
int main() {
    int n, sum = 0;
    printf("Enter the value of n: ");
    scanf("%d", &n);

    for (int i = 1; i <= n; i += 2) {
        sum += i;
    }

    printf("Sum of odd numbers from 1 to %d: %d\n", n, sum);
    return 0;
}
```

The terminal window below shows the command line and its output:

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { ./tempCodeRunnerFile }
Enter the value of n: 2
Sum of odd numbers from 1 to 2: 1
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

8.Print sum of odd numbers from in given range.

```
#include <stdio.h>
```

```
int main() {
    int start, end, sum = 0;
    printf("Enter the range (start end): ");
    scanf("%d %d", &start, &end);

    for (int i = start; i <= end; i++) {
        if (i % 2 != 0) {
            sum += i;
        }
    }

    printf("Sum of odd numbers in the range %d to %d: %d\n", start, end, sum);

    return 0;
}
```

```
#include <stdio.h>
int main() {
    int start, end, sum = 0;
    printf("Enter the range (start end): ");
    scanf("%d %d", &start, &end);
    for (int i = start; i <= end; i++) {
        if (i % 2 != 0) {
            sum += i;
        }
    }
    printf("Sum of odd numbers in the range %d to %d: %d\n", start, end, sum);
    return 0;
}
```

PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston\" ; if (\$?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (\$?) { ./tempCodeRunnerFile }

Enter the range (start end): 1 2

Sum of odd numbers in the range 1 to 2: 1

PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>

9. Base salary of a person is 50000. and he also get 40% bonus of house rent and 15% bonus of other.print gross salary.

```
#include <stdio.h>
```

```
int main() {
    float baseSalary = 50000;
    float houseRentBonus = 0.4 * baseSalary;
    float otherBonus = 0.15 * baseSalary;
    float grossSalary = baseSalary + houseRentBonus + otherBonus;

    printf("Gross Salary: %.2f\n", grossSalary);

    return 0;
}
```

The screenshot shows a Microsoft Visual Studio Code (VS Code) interface. The top bar includes File, Edit, Selection, View, Go, Run, Terminal, Help, and a search bar labeled 'A java practise'. The left sidebar shows a file tree with files like Calculation.java, cal1.java, Mycalculation.java, Vehicle.java, problem2.java, test.js, test.html, problem1.c (which is the active tab), Car.java, and Student.java. The main editor area contains the following C code:

```
1 #include <stdio.h>
2
3 int main() {
4     float baseSalary = 50000;
5     float houseRentBonus = 0.4 * baseSalary;
6     float otherBonus = 0.15 * baseSalary;
7     float grossSalary = baseSalary + houseRentBonus + otherBonus;
8
9     printf("Gross Salary: %.2f\n", grossSalary);
10
11    return 0;
12 }
```

Below the editor, tabs for PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL, and PORTS are visible. The TERMINAL tab is selected, showing command-line output:

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston\" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { ./tempCodeRunnerFile }
Gross Salary: 77500.00
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

The bottom of the screen shows a Windows taskbar with icons for Start, Search, Task View, File Explorer, Edge, Mail, Facebook, Google Chrome, and others. The system tray shows the date and time as 9:13 PM 11/15/2023.

10. Write a program in C to display the cube of the number upto given an integer.

```
#include <stdio.h>
```

```
int main() {
    int n;
    printf("Enter the value of n: ");
    scanf("%d", &n);

    printf("Cubes of numbers up to %d are:\n", n);
    for (int i = 1; i <= n; i++) {
        printf("%d^3 = %d\n", i, i * i * i);
    }

    return 0;
}
```

The screenshot shows a code editor interface with a dark theme. The main area displays a C program named 'problem1.c'. The code prompts the user for a value of n, then prints the cubes of all numbers from 1 to n. The terminal tab at the bottom shows the execution of the program, entering 60 as input, and displaying the output: 'Cubes of numbers up to 60 are:' followed by a list of cubes from 1^3 to 9^3.

```
#include <stdio.h>
int main() {
    int n;
    printf("Enter the value of n: ");
    scanf("%d", &n);

    printf("Cubes of numbers up to %d are:\n", n);
    for (int i = 1; i <= n; i++) {
        printf("%d^3 = %d\n", i, i * i * i);
    }
    return 0;
}
```

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston\" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
Enter the value of n: 60
Cubes of numbers up to 60 are:
1^3 = 1
2^3 = 8
3^3 = 27
4^3 = 64
5^3 = 125
6^3 = 216
7^3 = 343
8^3 = 512
9^3 = 729
```

11. Write a program in C to display the n terms of odd natural number and their sum.

```
#include <stdio.h>
```

```
int main() {
    int n, sum = 0;
    printf("Enter the value of n: ");
    scanf("%d", &n);

    printf("Odd natural numbers up to %d are:\n", n);
    for (int i = 1; i <= n; i += 2) {
        printf("%d ", i);
        sum += i;
    }

    printf("\nSum of odd natural numbers up to %d: %d\n", n, sum);

    return 0;
}
```

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston\" ; if ($?) { gcc t empCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
Enter the value of n: 33
Odd natural numbers up to 33 are:
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33
Sum of odd natural numbers up to 33: 289
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

12. Write a program in C to display the pattern like right angle triangle with a number. The pattern like : * *** *** ****

```
#include <stdio.h>
```

```
int main() {
    int n;
    printf("Enter the number of rows: ");
    scanf("%d", &n);

    for (int i = 1; i <= n; i++) {
        for (int j = 1; j <= i; j++) {
            printf("* ");
        }
        printf("\n");
    }

    return 0;
}
```

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston\" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
Enter the number of rows: 3
*
* *
* * *

PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

13. Write a program in C to make such a pattern like right angle triangle with number increased by 1. The pattern like : 1 2 3 4 5 6 7 8 9 10

```
#include <stdio.h>
```

```
int main() {
    int n, num = 1;
    printf("Enter the number of rows: ");
    scanf("%d", &n);

    for (int i = 1; i <= n; i++) {
        for (int j = 1; j <= i; j++) {
            printf("%d ", num++);
        }
        printf("\n");
    }

    return 0;
}
```

The screenshot shows a code editor interface with a dark theme. The top menu bar includes File, Edit, Selection, View, Go, Run, Terminal, and Help. The title bar says "A java practise". The left sidebar lists several files: Calculation.java, cal1.java, Mycalculation.java, Vehicle.java, problem2.java, test.js, test.html, problem1.c (which is the active tab), Car.java, and Student.java. The main code area contains the following C code:

```
1 #include <stdio.h>
2
3 int main() {
4     int n, num = 1;
5     printf("Enter the number of rows: ");
6     scanf("%d", &n);
7
8     for (int i = 1; i <= n; i++) {
9         for (int j = 1; j <= i; j++) {
10            printf("%d ", num++);
11        }
12        printf("\n");
13    }
14
15    return 0;
16 }
```

Below the code editor is a terminal window showing the execution of the program. The command `cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston\" ; if (\$?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (\$?) { .\tempCodeRunnerFile }` is run, followed by the input `Enter the number of rows: 5`. The output is a triangular pattern of numbers:

```
1
2 3
4 5 6
7 8 9 10
11 12 13 14 15
```

The terminal also shows the path `PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>` and various system status indicators at the bottom.

14. Write a program in C to display the pattern like a diamond. * *** ***** ***** * **** *

***** *** *

```
#include <stdio.h>
```

```
int main() {
    int n;
    printf("Enter the number of rows (odd): ");
    scanf("%d", &n);

    for (int i = 1; i <= n; i += 2) {
        for (int space = 0; space < (n - i) / 2; space++) {
            printf(" ");
        }
        for (int j = 1; j <= i; j++) {
            printf("*");
        }
        printf("\n");
    }
}
```

```
for (int i = n - 2; i >= 1; i -= 2) {
```

```

        for (int space = 0; space < (n - i) / 2; space++) {
            printf(" ");
        }
        for (int j = 1; j <= i; j++) {
            printf("*");
        }
        printf("\n");
    }

    return 0;
}

```

```

File Edit Selection View Go Run Terminal Help ← → ⌘ A java practise
File Calculation.java cal1.java Mycalculation.java Vehicle.java problem2.java test.js test.html problem1.c Car.java Student.java
1 #include <stdio.h>
2
3 int main() {
4     int n;
5     printf("Enter the number of rows (odd): ");
6     scanf("%d", &n);
7
8     for (int i = 1; i <= n; i += 2) {
9         for (int space = 0; space < (n - i) / 2; space++) {
10             printf(" ");
11         }
12         for (int j = 1; j <= i; j++) {
13             printf("*");
14         }
15         printf("\n");
16     }
17
18     for (int i = n - 2; i >= 1; i -= 2) {
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston\" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { .\tempCodeRunnerFile }
Enter the number of rows (odd): 6
*
***
*****
****
**
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>

```

15. Write a C Program to display the pattern like pyramid using the alphabet. A A B A A B C B A
A B C D C B A

```
#include <stdio.h>
```

```

int main() {
    int n;
    printf("Enter the number of rows: ");
    scanf("%d", &n);
}

```

```

for (int i = 1; i <= n; i++) {
    char ch = 'A';
    for (int j = 1; j <= i; j++) {
        printf("%c ", ch++);
    }
    printf("\n");
}

return 0;
}

```

```

File Edit Selection View Go Run Terminal Help ← → ⌂ A.java practise
Calculation.java cal1.java Mycalculation.java Vehicle.java problem2.java test.js test.html problem1.c Car.java Student.java
oop > Capston > C problem1.c > main()
1 #include <stdio.h>
2
3 int main() {
4     int n;
5     printf("Enter the number of rows: ");
6     scanf("%d", &n);
7
8     for (int i = 1; i <= n; i++) {
9         char ch = 'A';
10        for (int j = 1; j <= i; j++) {
11            printf("%c ", ch++);
12        }
13        printf("\n");
14    }
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Code + □ ☰ ... ^ x
PS C:\Users\fahim\OneDrive\Documents\A.java practise> cd "c:\Users\fahim\OneDrive\Documents\A.java practise\oop\Capston" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
Enter the number of rows: 6
A
A B
A B C
A B C D
A B C D E
A B C D E F
PS C:\Users\fahim\OneDrive\Documents\A.java practise\oop\Capston>

```

16. Write a C program to find whether a given year is a leap year or not.

```
#include <stdio.h>
```

```

int main() {
    int year;
    printf("Enter a year: ");
    scanf("%d", &year);

    if ((year % 4 == 0 && year % 100 != 0) || (year % 400 == 0)) {
        printf("%d is a leap year.\n", year);
    }
}

```

```

} else {
    printf("%d is not a leap year.\n", year);
}

return 0;
}

```

```

File Edit Selection View Go Run Terminal Help ← → ⌂ A java practise
J Calculation.java J calc1.java J Mycalculation.java J Vehicle.java J problem2.java JS test.js O test.html C problem1.c X J CarJava J Student.java D M E 06 - a ...
oop > Capston > C problem1.c @ main()
1 #include <stdio.h>
2
3 int main() {
4     int year;
5     printf("Enter a year: ");
6     scanf("%d", &year);
7
8     if ((year % 4 == 0 && year % 100 != 0) || (year % 400 == 0)) {
9         printf("%d is a leap year.\n", year);
10    } else {
11        printf("%d is not a leap year.\n", year);
12    }
13
14    return 0;
}

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```

PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
Enter a year: 2023
2023 is not a leap year.
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>

```

17. Write a C program to find the largest of three numbers.

```
#include <stdio.h>
```

```

int main() {
    int num1, num2, num3;
    printf("Enter three numbers: ");
    scanf("%d %d %d", &num1, &num2, &num3);

    if (num1 >= num2 && num1 >= num3) {
        printf("%d is the largest.\n", num1);
    } else if (num2 >= num1 && num2 >= num3) {
        printf("%d is the largest.\n", num2);
    } else {
        printf("%d is the largest.\n", num3);
    }
}

```

```
}
```

```
return 0;
```

```
}
```

```
#include <stdio.h>
int main() {
    int num1, num2, num3;
    printf("Enter three numbers: ");
    scanf("%d %d %d", &num1, &num2, &num3);

    if (num1 >= num2 && num1 >= num3) {
        printf("%d is the largest.\n", num1);
    } else if (num2 >= num1 && num2 >= num3) {
        printf("%d is the largest.\n", num2);
    } else {
        printf("%d is the largest.\n", num3);
    }
}
```

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston\" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { .\tempCodeRunnerFile }
Enter three numbers: 5
2 3
5 is the largest.
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

18.. Write a C program to read temperature in centigrade and display a suitable message according to temperature state below. Temp < 0 then Freezing weather Temp 0-10 then Very Cold weather Temp 10-20 then Cold weather Temp 20-30 then Normal in Temp Temp 30-40 then Its Hot Temp >=40 then Its Very Hot Test Data : 42 Expected Output : Its very hot

```
#include <stdio.h>

int main() {
    float temperature;
    printf("Enter the temperature in centigrade: ");
    scanf("%f", &temperature);

    if (temperature < 0) {
        printf("Freezing weather\n");
    } else if (temperature >= 0 && temperature <= 10) {
        printf("Very Cold weather\n");
    } else if (temperature > 10 && temperature <= 20) {
        printf("Cold weather\n");
    } else if (temperature > 20 && temperature <= 30) {
        printf("Normal weather\n");
    } else if (temperature > 30 && temperature <= 40) {
        printf("Hot weather\n");
    } else {
        printf("Very Hot weather\n");
    }
}
```

```

} else if (temperature > 20 && temperature <= 30) {
    printf("Normal in Temp\n");
} else if (temperature > 30 && temperature <= 40) {
    printf("It's Hot\n");
} else {
    printf("It's Very Hot\n");
}

return 0;
}

```

```

PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston\" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { .\tempCodeRunnerFile }
Enter the temperature in centigrade: 29
Normal in Temp
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>

```

19. Write a C program to check whether a triangle can be formed by the given value for the angles.

```
#include <stdio.h>
```

```

int main() {
    int angle1, angle2, angle3;

    printf("Enter three angles of the triangle: ");
    scanf("%d %d %d", &angle1, &angle2, &angle3);

    if (angle1 + angle2 + angle3 == 180) {

```

```

        printf("Triangle can be formed with these angles.\n");
    } else {
        printf("Triangle cannot be formed with these angles.\n");
    }

    return 0;
}

```

```

File Edit Selection View Go Run Terminal Help ← → ⌂ A java practise
J Calculation.java J cal1.java J Mycalculation.java J Vehicle.java J problem2.java JS test.js O test.html C problem1.c X J Car.java J Student.java D ☰ 08 - x
Calculation.java Capston problem1.c main()
1 #include <stdio.h>
2
3 int main() {
4     int angle1, angle2, angle3;
5
6     printf("Enter three angles of the triangle: ");
7     scanf("%d %d %d", &angle1, &angle2, &angle3);
8
9     if (angle1 + angle2 + angle3 == 180) {
10         printf("Triangle can be formed with these angles.\n");
11     } else {
12         printf("Triangle cannot be formed with these angles.\n");
13     }
14
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston\" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
Enter three angles of the triangle: 5 6 9
Triangle cannot be formed with these angles.
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston> [REDACTED]

```

The screenshot shows a Windows desktop environment with VS Code open. The code editor displays a C program that prompts the user for three angles and checks if they can form a triangle. The terminal window below shows the program's output when three non-zero angles are entered.

20. Write a C program to check whether a character is an alphabet, digit or special character.

```
#include <stdio.h>
```

```

int main() {
    char ch;

    printf("Enter a character: ");
    scanf(" %c", &ch);

    if ((ch >= 'a' && ch <= 'z') || (ch >= 'A' && ch <= 'Z')) {
        printf("%c is an alphabet.\n", ch);
    } else if (ch >= '0' && ch <= '9') {
        printf("%c is a digit.\n", ch);
    }
}

```

```

} else {
    printf("%c is a special character.\n", ch);
}

return 0;
}

```

```

File Edit Selection View Go Run Terminal Help ← → ⌂ A java practise
J Calculation.java J calc1.java J Mycalculation.java J Vehicle.java J problem2.java JS test.js O test.html C problem1.c X J CarJava J Student.java D M 06 - a ...
Joop > Capston > C problem1.c @ main()
1 #include <stdio.h>
2
3 int main() {
4     char ch;
5
6     printf("Enter a character: ");
7     scanf(" %c", &ch);
8
9     if ((ch >= 'a' && ch <= 'z') || (ch >= 'A' && ch <= 'Z')) {
10         printf("%c is an alphabet.\n", ch);
11     } else if (ch >= '0' && ch <= '9') {
12         printf("%c is a digit.\n", ch);
13     } else {
14         printf("%c is a special character.\n", ch);
}
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { ./tempCodeRunnerFile }
Enter a character: a
a is an alphabet.
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>

```

The screenshot shows a Visual Studio Code interface with a C file named 'problem1.c' open. The code prompts the user to enter a character, checks if it's an alphabet, a digit, or a special character, and prints the result. A terminal window below the editor shows the program being run and outputting 'a' as an alphabet. The system tray at the bottom indicates a temperature of 27°C and a haze condition.

21. Write a C program to check whether an alphabet is a vowel or consonant.

```
#include <stdio.h>
```

```

int main() {
    char ch;

    printf("Enter an alphabet: ");
    scanf(" %c", &ch);

    if ((ch >= 'a' && ch <= 'z') || (ch >= 'A' && ch <= 'Z')) {
        if (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u' ||
            ch == 'A' || ch == 'E' || ch == 'I' || ch == 'O' || ch == 'U') {
            printf("%c is a vowel.\n", ch);
        } else {
    }
}

```

```

        printf("%c is a consonant.\n", ch);
    }
} else {
    printf("Invalid input.\n");
}

return 0;
}

```

```

File Edit Selection View Go Run Terminal Help ← → A Java practise
File Edit Selection View Go Run Terminal Help ← → A Java practise
Calculation.java cal1.java Mycalculation.java Vehicle.java problem2.java test.js test.html problem1.c Car.java Student.java
oop > Capston > C problem1.c > main()
3 int main() {
4     char ch;
5
6     printf("Enter an alphabet: ");
7     scanf(" %c", &ch);
8
9     if ((ch >= 'a' && ch <= 'z') || (ch >= 'A' && ch <= 'Z')) {
10         if (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u' ||
11             ch == 'A' || ch == 'E' || ch == 'I' || ch == 'O' || ch == 'U') {
12             printf("%c is a vowel.\n", ch);
13         } else {
14             printf("%c is a consonant.\n", ch);
15         }
16     } else {
17         printf("Invalid input.\n");
18     }
}

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```

PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston\" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { ./tempCodeRunnerFile }
Enter an alphabet: A
A is a vowel.
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>

```

22. Write a program in C to read any day number in integer and display day name in the word.

```
#include <stdio.h>
```

```

int main() {
    int dayNumber;

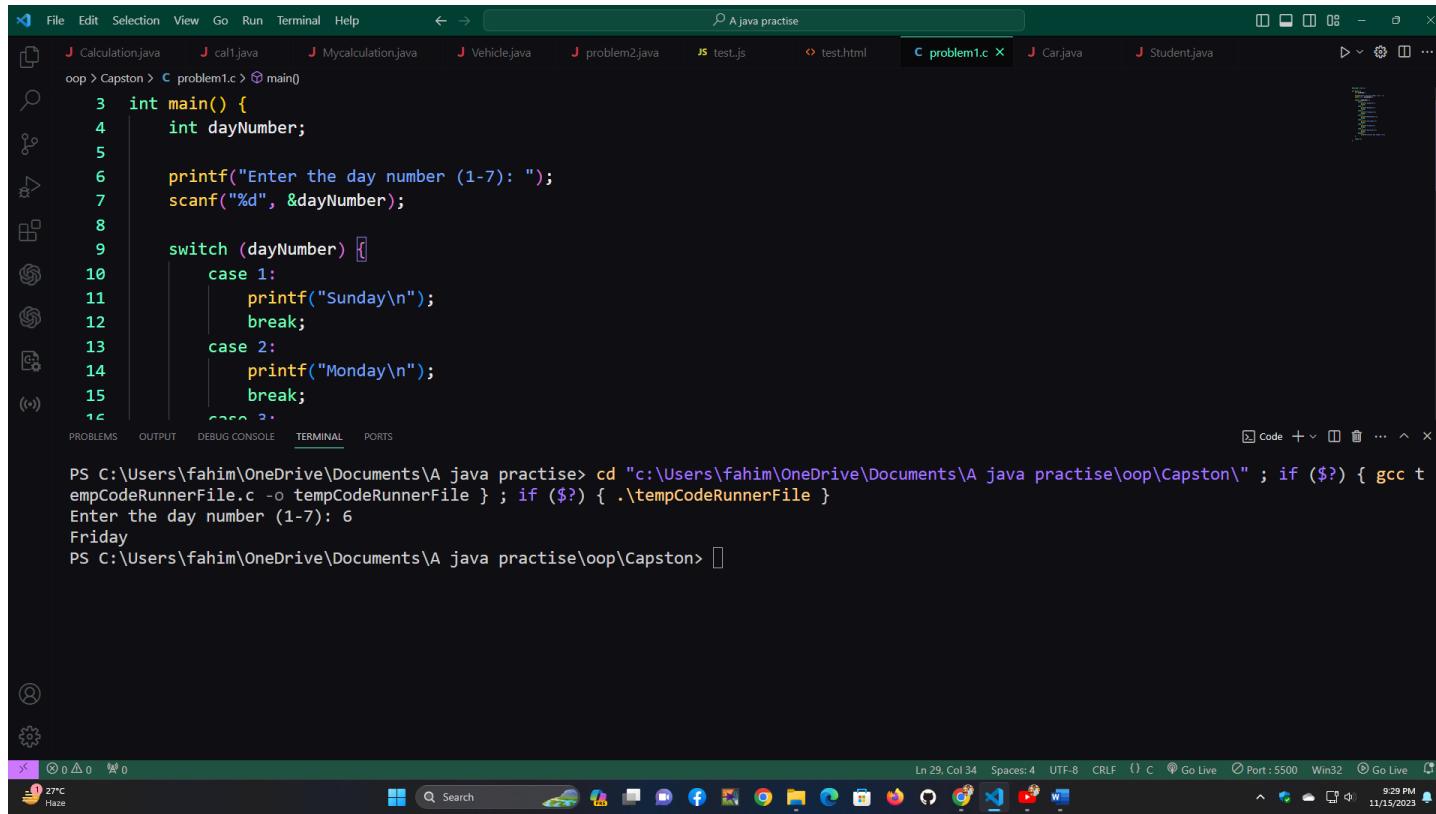
    printf("Enter the day number (1-7): ");
    scanf("%d", &dayNumber);

    switch (dayNumber) {
        case 1:
            printf("Sunday\n");

```

```
        break;
    case 2:
        printf("Monday\n");
        break;
    case 3:
        printf("Tuesday\n");
        break;
    case 4:
        printf("Wednesday\n");
        break;
    case 5:
        printf("Thursday\n");
        break;
    case 6:
        printf("Friday\n");
        break;
    case 7:
        printf("Saturday\n");
        break;
    default:
        printf("Invalid day number.\n");
    }
}

return 0;
}
```



```
File Edit Selection View Go Run Terminal Help ← → ⌂ A java practise
Calculation.java cal1.java Mycalculation.java Vehicle.java problem2.java test.js test.html problem1.c Car.java Student.java
oop > Capston > C problem1.c > main()
3 int main() {
4     int dayNumber;
5
6     printf("Enter the day number (1-7): ");
7     scanf("%d", &dayNumber);
8
9     switch (dayNumber) {
10         case 1:
11             printf("Sunday\n");
12             break;
13         case 2:
14             printf("Monday\n");
15             break;
16     }
}
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Code + ▾ ⌂ ... ^ ×
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { ./tempCodeRunnerFile }
Enter the day number (1-7): 6
Friday
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston> 
```

23. Write a program in C to read any Month Number in integer and display Month name in the word.

```
#include <stdio.h>
```

```
int main() {
    int monthNumber;

    printf("Enter the month number (1-12): ");
    scanf("%d", &monthNumber);

    switch (monthNumber) {
        case 1:
            printf("January\n");
            break;
        case 2:
            printf("February\n");
            break;
        case 3:
            printf("March\n");
            break;
    }
}
```

```
case 4:  
    printf("April\n");  
    break;  
case 5:  
    printf("May\n");  
    break;  
case 6:  
    printf("June\n");  
    break;  
case 7:  
    printf("July\n");  
    break;  
case 8:  
    printf("August\n");  
    break;  
case 9:  
    printf("September\n");  
    break;  
case 10:  
    printf("October\n");  
    break;  
case 11:  
    printf("November\n");  
    break;  
case 12:  
    printf("December\n");  
    break;  
default:  
    printf("Invalid month number.\n");  
}  
  
return 0;  
}
```

The screenshot shows a Microsoft Visual Studio Code (VS Code) interface. The top menu bar includes File, Edit, Selection, View, Go, Run, Terminal, Help, and a search bar labeled 'A java practise'. The left sidebar shows a file tree with files like Calculation.java, cal1.java, Mycalculation.java, Vehicle.java, problem2.java, test.js, test.html, problem1.c (which is the active tab), Car.java, and Student.java. The main editor area contains the following C code:

```
5
6     printf("Enter the month number (1-12): ");
7     scanf("%d", &monthNumber);
8
9     switch (monthNumber) {
10         case 1:
11             printf("January\n");
12             break;
13         case 2:
14             printf("February\n");
15             break;
16         case 3:
17             printf("March\n");
18             break;
```

Below the editor are tabs for PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL, and PORTS. The TERMINAL tab is selected, showing command-line output:

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { ./tempCodeRunnerFile }
Enter the month number (1-12): 7
July
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston> 
```

The bottom status bar shows information such as 'Ln 16, Col 16', 'Spaces: 4', 'UTF-8', 'CRLF', 'C', 'Port: 5500', 'Win32', and 'Go Live'.

24. Write a program in C to read any Month Number in integer and display the number of days for this month.

```
#include <stdio.h>
```

```
int main() {
    int monthNumber;

    printf("Enter the month number (1-12): ");
    scanf("%d", &monthNumber);

    switch (monthNumber) {
        case 1:
        case 3:
        case 5:
        case 7:
        case 8:
        case 10:
        case 12:
            printf("31 days\n");
            break;
```

```

case 4:
case 6:
case 9:
case 11:
    printf("30 days\n");
    break;
case 2:
    printf("28 or 29 days (leap year)\n");
    break;
default:
    printf("Invalid month number.\n");
}

return 0;
}

```

The screenshot shows a code editor interface with a tab bar containing files like Calculation.java, cal1.java, Mycalculation.java, Vehicle.java, problem2.java, test.js, test.html, problem1.c (the active file), Car.java, and Student.java. The code in problem1.c is as follows:

```

oop > Capston > C problem1.c > main()
22     case 11:
23         printf("30 days\n");
24         break;
25     case 2:
26         printf("28 or 29 days (leap year)\n");
27         break;
28     default:
29         printf("Invalid month number.\n");
30     }
31
32     return 0;
33 }
34
((v))

```

Below the code editor is a terminal window showing the command-line execution of the program:

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
Enter the month number (1-12): 12
31 days
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>

```

The system tray at the bottom of the screen indicates a temperature of 27°C and a weather condition of Haze.

25. Write a program that converts Centigrade to Kelvin

```
#include <stdio.h>
```

```
int main() {
```

```

float celsius, kelvin;

printf("Enter temperature in Centigrade: ");
scanf("%f", &celsius);

kelvin = celsius + 273.15;

printf("Temperature in Kelvin: %.2f K\n", kelvin);

return 0;
}

```

```

1 #include <stdio.h>
2
3 int main() {
4     float celsius, kelvin;
5
6     printf("Enter temperature in Centigrade: ");
7     scanf("%f", &celsius);
8
9     kelvin = celsius + 273.15;
10
11    printf("Temperature in Kelvin: %.2f K\n", kelvin);
12
13    return 0;
14 }

PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston\" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
Enter temperature in Centigrade: 63
Temperature in Kelvin: 336.15 K
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>

```

1. Write a C program to print your name, date of birth, and mobile number.

```
#include <stdio.h>
```

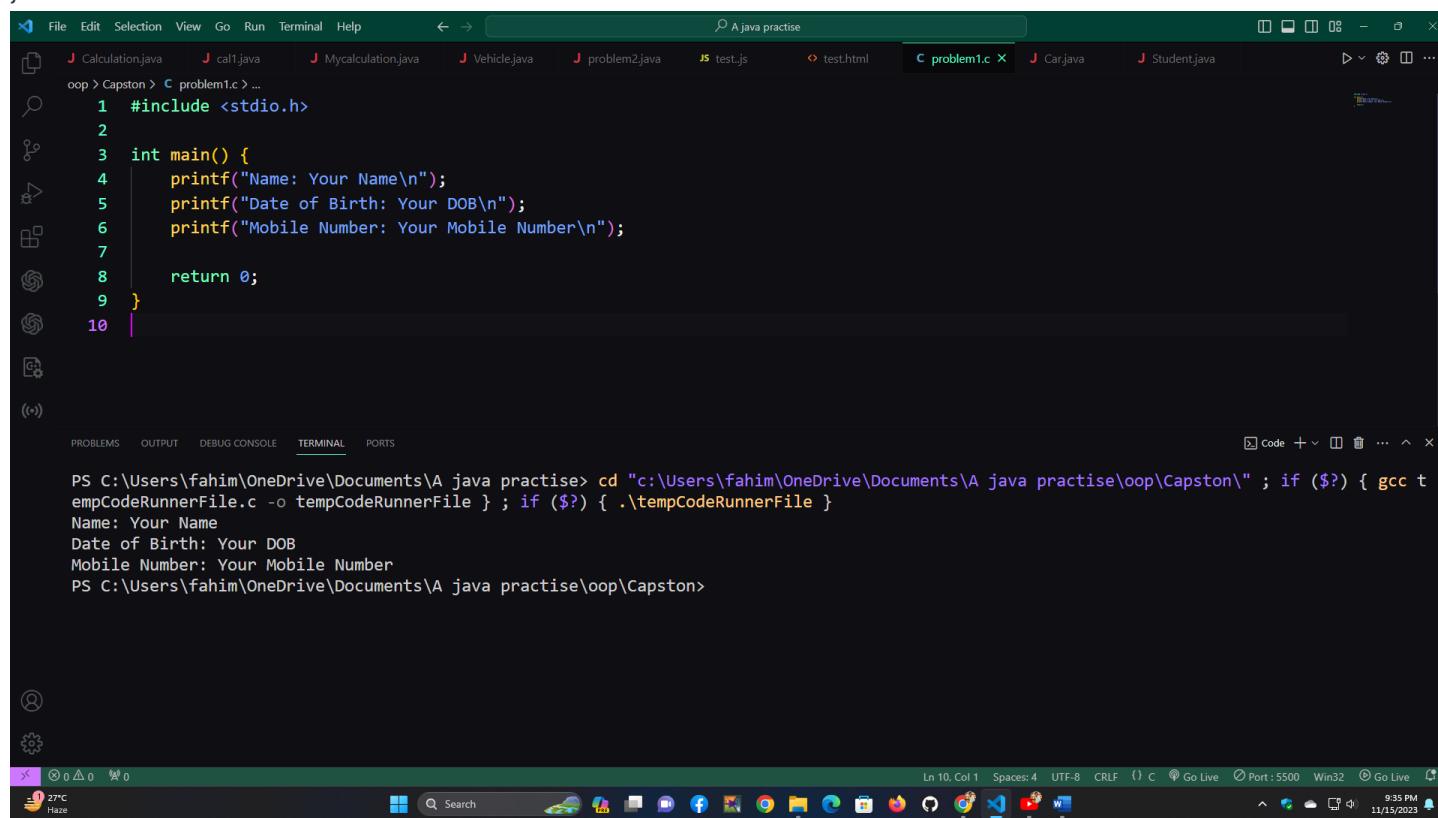
```

int main() {
    printf("Name: Your Name\n");
    printf("Date of Birth: Your DOB\n");
    printf("Mobile Number: Your Mobile Number\n");

    return 0;
}

```

```
}
```



```
File Edit Selection View Go Run Terminal Help ← → A java practise
J Calculation.java J calt.java J Mycalculation.java J Vehicle.java J problem2.java JS test.js O test.html C problem1.c X J Car.java J Student.java
oooooooooooo
oop > Capston > C problem1.c > ...
1 #include <stdio.h>
2
3 int main() {
4     printf("Name: Your Name\n");
5     printf("Date of Birth: Your DOB\n");
6     printf("Mobile Number: Your Mobile Number\n");
7
8     return 0;
9 }
10

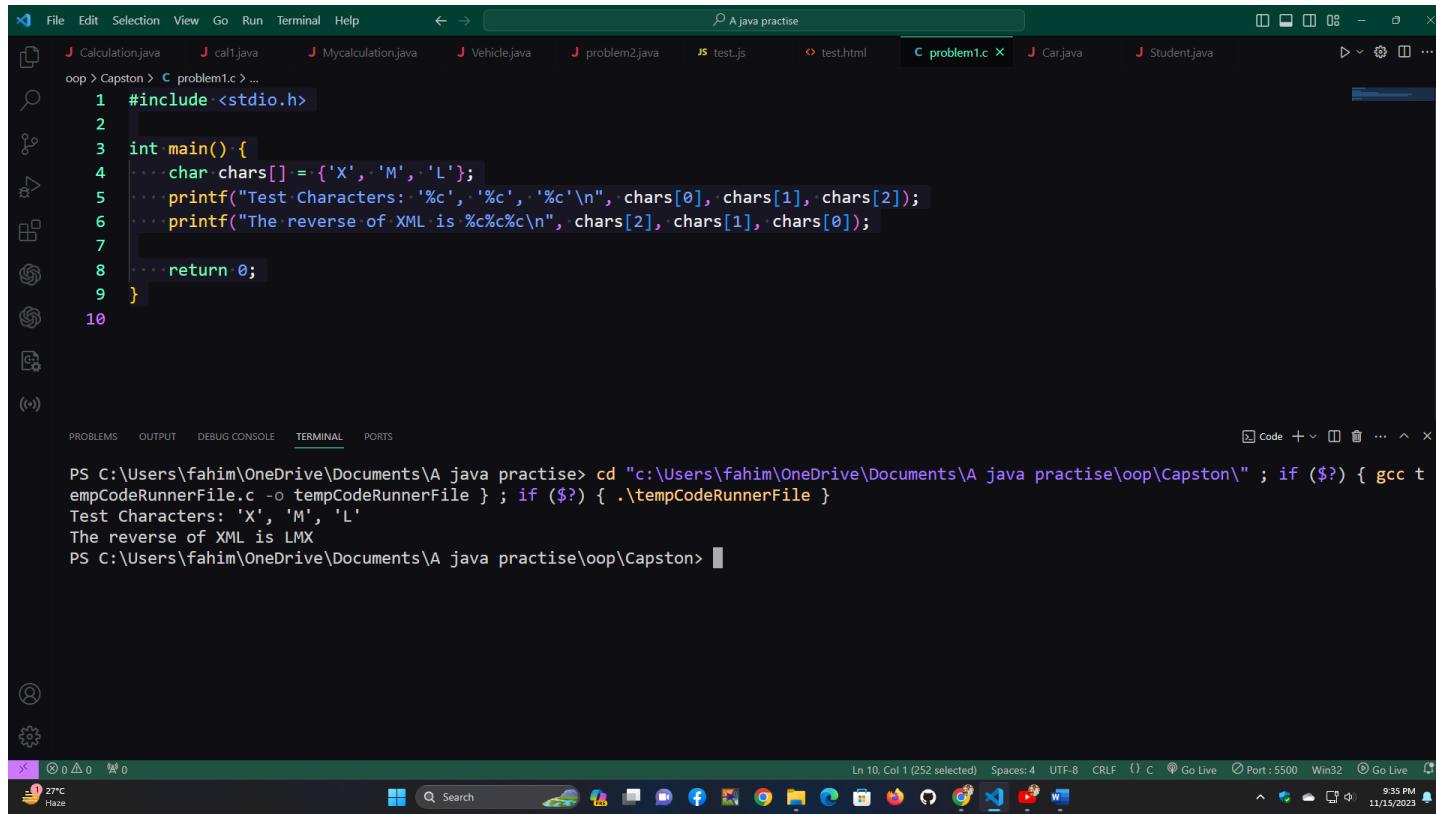
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
Name: Your Name
Date of Birth: Your DOB
Mobile Number: Your Mobile Number
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

2. Write a C program to print the following characters in a reverse way. Test Characters: 'X', 'M', 'L' Expected Output: The reverse of XML is LMX

```
#include <stdio.h>
```

```
int main() {
    char chars[] = {'X', 'M', 'L'};
    printf("Test Characters: '%c', '%c', '%c'\n", chars[0], chars[1], chars[2]);
    printf("The reverse of XML is %c%c%c\n", chars[2], chars[1], chars[0]);

    return 0;
}
```



```
#include <stdio.h>
int main() {
    char chars[] = {'X', 'M', 'L'};
    printf("Test Characters: %c, %c, %c\n", chars[0], chars[1], chars[2]);
    printf("The reverse of XML is %c%c%c\n", chars[2], chars[1], chars[0]);
}
return 0;
```

PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { .\tempCodeRunnerFile }

Test Characters: 'X', 'M', 'L'

The reverse of XML is LMX

PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>

3. Write a C program to convert specified days into years, weeks and days.

```
#include <stdio.h>
```

```
int main() {
    int days;

    printf("Enter the number of days: ");
    scanf("%d", &days);

    int years = days / 365;
    int weeks = (days % 365) / 7;
    int remainingDays = (days % 365) % 7;

    printf("%d days is equal to %d years, %d weeks, and %d days.\n", days, years, weeks,
remainingDays);

    return 0;
}
```

A screenshot of the Visual Studio Code (VS Code) interface. The top bar shows the menu: File, Edit, Selection, View, Go, Run, Terminal, Help. The title bar says "A java practise". The left sidebar shows files: Calculation.java, cal1.java, Mycalculation.java, Vehicle.java, problem2.java, test.js, test.html, problem1.c (selected), Car.java, Student.java. The main editor area contains a C program:

```
5
6     printf("Enter the number of days: ");
7     scanf("%d", &days);
8
9     int years = days / 365;
10    int weeks = (days % 365) / 7;
11    int remainingDays = (days % 365) % 7;
12
13    printf("%d days is equal to %d years, %d weeks, and %d days.\n", days, years, weeks, remainingDays);
14
15    return 0;
16 }
```

The terminal at the bottom shows the command line and its output:

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { ./tempCodeRunnerFile }
Enter the number of days: 5
5 days is equal to 0 years, 0 weeks, and 5 days.
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

4. Write a C program to calculate the distance between the two points.

```
#include <stdio.h>
```

```
#include <math.h>
```

```
int main() {
```

```
    float x1, y1, x2, y2, distance;
```

```
    printf("Enter the coordinates of point 1 (x1 y1): ");
```

```
    scanf("%f %f", &x1, &y1);
```

```
    printf("Enter the coordinates of point 2 (x2 y2): ");
```

```
    scanf("%f %f", &x2, &y2);
```

```
    distance = sqrt(pow(x2 - x1, 2) + pow(y2 - y1, 2));
```

```
    printf("Distance between the two points: %.2f\n", distance);
```

```
    return 0;
```

```
}
```

```
File Edit Selection View Go Run Terminal Help ← → ⌂ A java practise
Calculation.java cal1.java Mycalculation.java Vehicle.java problem2.java test.js test.html problem1.c Car.java Student.java
oop > Capston > c problem1.c > main()
3
4 int main() {
5     float x1, y1, x2, y2, distance;
6
7     printf("Enter the coordinates of point 1 (x1 y1): ");
8     scanf("%f %f", &x1, &y1);
9
10    printf("Enter the coordinates of point 2 (x2 y2): ");
11    scanf("%f %f", &x2, &y2);
12
13    distance = sqrt(pow(x2 - x1, 2) + pow(y2 - y1, 2));
14
15    printf("Distance between the two points: %.2f\n", distance);
16

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Code + ⊞ ⌂ ... ^ ×
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { .\tempCodeRunnerFile }
Enter the coordinates of point 1 (x1 y1): 1 2
Enter the coordinates of point 2 (x2 y2): 9 6
Distance between the two points: 8.94
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

The screenshot shows a terminal window in a code editor interface. The user has run a C program named 'problem1.c' which calculates the distance between two points. The program prompts for coordinates, performs the calculation using the Pythagorean theorem, and prints the result. The terminal also shows the command used to run the program and the current directory.

5. Write a C program to calculate the value of S where $S = 1 + 1/2 + 1/3 + \dots + 1/50$.

```
#include <stdio.h>
```

```
int main() {
    double sum = 0;

    for (int i = 1; i <= 50; i++) {
        sum += 1.0 / i;
    }

    printf("The value of S is: %f\n", sum);

    return 0;
}
```

```
File Edit Selection View Go Run Terminal Help ← → ⌂ A java practise
Calculation.java cal1.java Mycalculation.java Vehicle.java problem2.java test.js test.html problem1.c Car.java Student.java
oop > Capston > C problem1.c > main()
1 #include <stdio.h>
2
3 int main() {
4     double sum = 0;
5
6     for (int i = 1; i <= 50; i++) {
7         sum += 1.0 / i;
8     }
9
10    printf("The value of S is: %f\n", sum);
11
12    return 0;
13 }
14
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { ./tempCodeRunnerFile }
The value of S is: 4.499205
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

⑧

⑨

⑩ 27°C Haze

6. Write a C program to accept two integers and check whether they are equal or not.

```
#include <stdio.h>
```

```
int main() {
    int num1, num2;

    printf("Enter two integers: ");
    scanf("%d %d", &num1, &num2);

    if (num1 == num2) {
        printf("The two numbers are equal.\n");
    } else {
        printf("The two numbers are not equal.\n");
    }

    return 0;
}
```

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston"
PS C:\Users\fahim\OneDrive\Documents\A java practise> gcc tempCodeRunnerFile.c -o tempCodeRunnerFile
PS C:\Users\fahim\OneDrive\Documents\A java practise> ./tempCodeRunnerFile
Enter two integers: 1 2
The two numbers are not equal.
PS C:\Users\fahim\OneDrive\Documents\A java practise>
```

7. Write a C program to check whether a given number is positive or negative.

```
#include <stdio.h>
```

```
int main() {
    int num;

    printf("Enter a number: ");
    scanf("%d", &num);

    if (num > 0) {
        printf("The number is positive.\n");
    } else if (num < 0) {
        printf("The number is negative.\n");
    } else {
        printf("The number is zero.\n");
    }

    return 0;
}
```

The screenshot shows a Microsoft Visual Studio Code (VS Code) interface. The top bar includes File, Edit, Selection, View, Go, Run, Terminal, Help, and a search bar labeled 'A java practise'. The left sidebar shows a file tree with files like Calculation.java, cal1.java, Mycalculation.java, Vehicle.java, problem2.java, test.js, test.html, problem1.c (which is the active tab), Car.java, and Student.java. The main editor area contains the following C code:

```
1 #include <stdio.h>
2
3 int main() {
4     int num;
5
6     printf("Enter a number: ");
7     scanf("%d", &num);
8
9     if (num > 0) {
10         printf("The number is positive.\n");
11     } else if (num < 0) {
12         printf("The number is negative.\n");
13     } else {
14         printf("The number is zero.\n");
15     }
16 }
```

Below the editor are tabs for PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL (which is selected), and PORTS. The terminal pane shows the following command-line session:

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { ./tempCodeRunnerFile }
Enter a number: 3
The number is positive.
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

The taskbar at the bottom shows various icons for system functions like battery, signal, and volume, along with the date and time (11/15/2023, 9:42 PM).

8. Write a C program that calculates the volume of a sphere.

```
#include <stdio.h>
#include <math.h>

int main() {
    double radius, volume;

    printf("Enter the radius of the sphere: ");
    scanf("%lf", &radius);

    volume = (4.0 / 3.0) * M_PI * pow(radius, 3);

    printf("Volume of the sphere: %.2f\n", volume);

    return 0;
}
```

A screenshot of a Windows desktop environment. At the top, there's a taskbar with various icons. Below the taskbar, a terminal window is open with the following command and output:

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { .\tempCodeRunnerFile }
Enter the radius of the sphere: 6
Volume of the sphere: 904.78
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

The background shows a code editor with a C program. The code calculates the volume of a sphere given its radius. The terminal window has tabs for PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL (which is active), and PORTS.

9. Write a C program to find the third angle of a triangle if two angles are given.

```
#include <stdio.h>
```

```
int main() {
    int angle1, angle2, angle3;

    printf("Enter the first angle: ");
    scanf("%d", &angle1);

    printf("Enter the second angle: ");
    scanf("%d", &angle2);

    angle3 = 180 - angle1 - angle2;

    printf("The third angle is: %d\n", angle3);

    return 0;
}
```

```
File Edit Selection View Go Run Terminal Help ← → ⌂ A java practise
Calculation.java cal1.java Mycalculation.java Vehicle.java problem2.java test.js test.html problem1.c Car.java Student.java
oop > Capston > C problem1.c > ...
1 #include <stdio.h>
2
3 int main() {
4     int angle1, angle2, angle3;
5
6     printf("Enter the first angle: ");
7     scanf("%d", &angle1);
8
9     printf("Enter the second angle: ");
10    scanf("%d", &angle2);
11
12    angle3 = 180 - angle1 - angle2;
13
14    printf("The third angle is: %d\n", angle3);
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { .\tempCodeRunnerFile }
Enter the first angle: 3
Enter the second angle: 6
The third angle is: 171
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

10. Write a C program to convert height feet to centimetre.

```
#include <stdio.h>
```

```
int main() {
    float heightFeet, heightCm;

    printf("Enter height in feet: ");
    scanf("%f", &heightFeet);

    heightCm = heightFeet * 30.48;

    printf("Height in centimeters: %.2f cm\n", heightCm);

    return 0;
}
```

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { ./tempCodeRunnerFile }
Enter height in feet: 6
Height in centimeters: 182.88 cm
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

11. Write a C program to perform addition, subtraction, multiplication and division of two numbers if they are even.

```
#include <stdio.h>
```

```
int main() {
    int num1, num2, sum, diff, product;
    float quotient;

    printf("Enter two numbers: ");
    scanf("%d %d", &num1, &num2);

    if (num1 % 2 == 0 && num2 % 2 == 0) {
        sum = num1 + num2;
        diff = num1 - num2;
        product = num1 * num2;
        quotient = (float) num1 / num2;

        printf("Sum: %d\n", sum);
        printf("Difference: %d\n", diff);
```

```

        printf("Product: %d\n", product);
        printf("Quotient: %.2f\n", quotient);
    } else {
        printf("Numbers are not even. Cannot perform operations.\n");
    }

    return 0;
}

```

```

File Edit Selection View Go Run Terminal Help ← → A Java practise
File Edit Selection View Go Run Terminal Help ← → A Java practise
Calculation.java cal1.java Mycalculation.java Vehicle.java problem2.java test.js test.html problem1.c Car.java Student.java
oop > Capston > C problem1.c > ...
3 int main() {
4     int num1, num2, sum, diff, product;
5     float quotient;
6
7     printf("Enter two numbers: ");
8     scanf("%d %d", &num1, &num2);
9
10    if (num1 % 2 == 0 && num2 % 2 == 0) {
11        sum = num1 + num2;
12        diff = num1 - num2;
13        product = num1 * num2;
14        quotient = (float) num1 / num2;
15
16        printf("Sum: %d\n", sum);
}
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Code + ... ^
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston\" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
Enter two numbers: 6 8
Sum: 14
Difference: -2
Product: 48
Quotient: 0.75
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston> 

```

12. Write a C program to calculate the average of two numbers if they are odd.

```
#include <stdio.h>
```

```

int main() {
    int num1, num2;

    printf("Enter two numbers: ");
    scanf("%d %d", &num1, &num2);

    if (num1 % 2 != 0 && num2 % 2 != 0) {
        double average = (num1 + num2) / 2.0;
        printf("Average of the two odd numbers: %.2f\n", average);
    }
}

```

```

} else {
    printf("Numbers are not both odd. Cannot calculate average.\n");
}

return 0;
}

```

```

File Edit Selection View Go Run Terminal Help ← → A.java practise
J Calculation.java J calc1.java J Mycalculation.java J Vehicle.java J problem2.java JS test.js O test.html C problem1.c X J CarJava J Student.java D M 06 a ...
J Capston > C problem1.c > main()
6   printf("Enter two numbers: ");
7   scanf("%d %d", &num1, &num2);
8
9   if (num1 % 2 != 0 && num2 % 2 != 0) {
10      double average = (num1 + num2) / 2.0;
11      printf("Average of the two odd numbers: %.2f\n", average);
12   } else {
13      printf("Numbers are not both odd. Cannot calculate average.\n");
14   }
15
16   return 0;
17 }
18

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\fahim\OneDrive\Documents\A.java practise> cd "c:\Users\fahim\OneDrive\Documents\A.java practise\oop\Capston" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { ./tempCodeRunnerFile }
Enter two numbers: 1 3
Average of the two odd numbers: 2.00
PS C:\Users\fahim\OneDrive\Documents\A.java practise\oop\Capston>

```

13. Write a C program to calculate the division of two numbers if they are negative.

```
#include <stdio.h>
```

```

int main() {
    int num1, num2;

    printf("Enter two numbers: ");
    scanf("%d %d", &num1, &num2);

    if (num1 < 0 && num2 < 0) {
        double result = (double) num1 / num2;
        printf("Division of the two negative numbers: %.2f\n", result);
    } else {
        printf("Numbers are not both negative. Cannot perform division.\n");
    }
}

```

```

    }

return 0;
}

```

```

File Edit Selection View Go Run Terminal Help ← → A java practise
J Calculation.java J cal1.java J Mycalculation.java J Vehicle.java J problem2.java JS test.js ⌘ test.html C problem1.c × J Car.java J Student.java
oooooooooooo
1 #include <stdio.h>
2
3 int main() {
4     int num1, num2;
5
6     printf("Enter two numbers: ");
7     scanf("%d %d", &num1, &num2);
8
9     if (num1 < 0 && num2 < 0) {
10        double result = (double) num1 / num2;
11        printf("Division of the two negative numbers: %.2f\n", result);
12    } else {
13        printf("Numbers are not both negative. Cannot perform division.\n");
14    }
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston\" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
Enter two numbers: 2 5
Numbers are not both negative. Cannot perform division.
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>

```

13. Input the height and base of a triangle from console and calculate the area of the triangle.

```
#include <stdio.h>
```

```

int main() {
    float height, base, area;

    printf("Enter the height of the triangle: ");
    scanf("%f", &height);

    printf("Enter the base of the triangle: ");
    scanf("%f", &base);

    area = 0.5 * base * height;

    printf("Area of the triangle: %.2f\n", area);
}

```

```
return 0;
}

File Edit Selection View Go Run Terminal Help ← → A Java practise
Calculation.java cal1.java Mycalculation.java Vehicle.java problem2.java test.js test.html problem1.c Car.java Student.java
File Edit Selection View Go Run Terminal Help ← → A Java practise
oop > Capston > C problem1.c > main()
1 #include <stdio.h>
2
3 int main() {
4     float height, base, area;
5
6     printf("Enter the height of the triangle: ");
7     scanf("%f", &height);
8
9     printf("Enter the base of the triangle: ");
10    scanf("%f", &base);
11
12    area = 0.5 * base * height;
13
14    printf("Area of the triangle: %.2f\n", area);
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if ($?) { gcc t
empCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
Enter the height of the triangle: 5
Enter the base of the triangle: 6
Area of the triangle: 15.00
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

14. Input two numbers from console and multiply them if 1st number less than 2nd number.

```
#include <stdio.h>
```

```
int main() {
    int num1, num2;

    printf("Enter two numbers: ");
    scanf("%d %d", &num1, &num2);

    if (num1 < num2) {
        int product = num1 * num2;
        printf("Multiplication of the two numbers: %d\n", product);
    } else {
        printf("The first number is not less than the second number. Cannot perform
multiplication.\n");
    }
}
```

```

        return 0;
    }

    File Edit Selection View Go Run Terminal Help ← → ⌂ A java practise
    Calculation.java cal1.java MycalculationJava Vehicle.java problem2.java test.js test.html problem1.c Car.java Student.java
    oop > Capston > C problem1.c ...
    1 #include <stdio.h>
    2
    3 int main() {
    4     int num1, num2;
    5
    6     printf("Enter two numbers: ");
    7     scanf("%d %d", &num1, &num2);
    8
    9     if (num1 < num2) {
    10         int product = num1 * num2;
    11         printf("Multiplication of the two numbers: %d\n", product);
    12     } else {
    13         printf("The first number is not less than the second number. Cannot perform multiplication.\n");
    14     }

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

Code + ×

```

PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston\" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
Enter two numbers: 2 6
Multiplication of the two numbers: 12
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>

```



15. Input a number from console and print if the number less than 20 and grater than 5.

```
#include <stdio.h>
```

```

int main() {
    int num;

    printf("Enter a number: ");
    scanf("%d", &num);

    if (num > 5 && num < 20) {
        printf("The number is between 5 and 20.\n");
    } else {
        printf("The number is not between 5 and 20.\n");
    }

    return 0;
}

```

```
File Edit Selection View Go Run Terminal Help ← → ⌂ A java practise
Calculation.java cal1.java Mycalculation.java Vehicle.java problem2.java test.js test.html problem1.c Car.java Student.java
oop > Capston > C problem1.c > ...
1 #include <stdio.h>
2
3 int main() {
4     int num;
5
6     printf("Enter a number: ");
7     scanf("%d", &num);
8
9     if (num > 5 && num < 20) {
10        printf("The number is between 5 and 20.\n");
11    } else {
12        printf("The number is not between 5 and 20.\n");
13    }
14

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Code + ▾ ⌂ ... ^ ×
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { ./tempCodeRunnerFile }
Enter a number: 23
The number is not between 5 and 20.
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

16. Input character from console and print x^2+4y+c .

```
#include <stdio.h>
```

```
int main() {
    char ch;

    printf("Enter a character: ");
    scanf(" %c", &ch);

    int x = ch;
    int y = x % 4;
    int result = x * x + 4 * y + ch;

    printf("Result: %d\n", result);

    return 0;
}
```

A screenshot of a Windows desktop environment. At the top, there's a taskbar with various pinned icons. Below the taskbar, a terminal window is open with the following command and output:

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { ./tempCodeRunnerFile }
Enter a character: s
Result: 13352
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

The background shows a code editor with multiple tabs open, including files like Calculation.java, Mycalculation.java, Vehicle.java, problem1.c, test.html, Car.java, and Student.java. The code editor interface includes a sidebar with icons for file operations, a bottom navigation bar with PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL, and PORTS, and a status bar at the bottom.

17. Make A multiplication table for 1.

```
#include <stdio.h>
```

```
int main() {
    int num = 1;

    for (int i = 1; i <= 10; i++) {
        printf("%d x %d = %d\n", num, i, num * i);
    }

    return 0;
}
```

```

File Edit Selection View Go Run Terminal Help ← → ⌂ A.java practise
File Edit Selection View Go Run Terminal Help ← → ⌂ A.java practise
Calculation.java cal1.java Mycalculation.java Vehicle.java problem2.java test.js test.html problem1.c Car.java Student.java
oop > Capston > C problem1.c ...
1 #include <stdio.h>
2
3 int main() {
4     int num = 1;
5
6     for (int i = 1; i <= 10; i++) {
7         printf("%d x %d = %d\n", num, i, num * i);
8     }
9
10    return 0;
11 }
12
(( ))
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Code + ⊞ ⊞ ⌂ ... ^ x
PS C:\Users\fahim\OneDrive\Documents\A.java practise> cd "c:\Users\fahim\OneDrive\Documents\A.java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { .\tempCodeRunnerFile }
1 x 1 = 1
1 x 2 = 2
1 x 3 = 3
1 x 4 = 4
1 x 5 = 5
1 x 6 = 6
1 x 7 = 7
1 x 8 = 8
1 x 9 = 9
1 x 10 = 10
PS C:\Users\fahim\OneDrive\Documents\A.java practise\oop\Capston> 

```

18. Make A multiplication table for 1 To 10.

```
#include <stdio.h>
```

```
int main() {
    for (int i = 1; i <= 10; i++) {
        printf("Multiplication table for %d:\n", i);
        for (int j = 1; j <= 10; j++) {
            printf("%d x %d = %d\n", i, j, i * j);
        }
        printf("\n");
    }

    return 0;
}
```

The screenshot shows a Microsoft Visual Studio Code (VS Code) interface. The top menu bar includes File, Edit, Selection, View, Go, Run, Terminal, Help, and a search bar labeled 'A java practise'. The left sidebar shows a file tree with files like Calculation.java, cal1.java, Mycalculation.java, Vehicle.java, problem2.java, test.js, test.html, problem1.c (which is the active tab), Car.java, and Student.java. The main code editor window contains the following C code:

```
1 #include <stdio.h>
2
3 int main() {
4     for(int i = 1; i <= 10; i++) {
5         printf("Multiplication table for %d:\n", i);
6         for(int j = 1; j <= 10; j++) {
7             printf("%d x %d = %d\n", i, j, i * j);
8         }
9         printf("\n");
10    }
11
12    return 0;
13 }
```

The terminal below the code editor shows the output of the program:

```
Multiplication table for 10:
10 x 1 = 10
10 x 2 = 20
10 x 3 = 30
10 x 4 = 40
10 x 5 = 50
10 x 6 = 60
10 x 7 = 70
10 x 8 = 80
10 x 9 = 90
10 x 10 = 100
```

The terminal also displays system information and icons at the bottom.

19. Print the numbers between 100 to 200 which are completely divisible by 3 and 5.

```
#include <stdio.h>
```

```
int main() {
    printf("Numbers between 100 and 200 that are divisible by 3 and 5:\n");
    for (int i = 100; i <= 200; i++) {
        if (i % 3 == 0 && i % 5 == 0) {
            printf("%d\n", i);
        }
    }

    return 0;
}
```

A screenshot of the Visual Studio Code (VS Code) interface. The top menu bar includes File, Edit, Selection, View, Go, Run, Terminal, Help, and a search bar labeled 'A java practise'. The left sidebar shows a file tree with files like Calculation.java, cal1.java, Mycalculation.java, Vehicle.java, problem2.java, test.js, test.html, problem1.c (which is the active tab), Car.java, and Student.java. The main code editor window contains the following C code:

```
1 #include <stdio.h>
2
3 int main() {
4     printf("Numbers between 100 and 200 that are divisible by 3 and 5:\n");
5     for (int i = 100; i <= 200; i++) {
6         if (i % 3 == 0 && i % 5 == 0) {
7             printf("%d\n", i);
8         }
9     }
10
11     return 0;
12 }
```

The terminal below the editor shows the output of running the code:

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { .\tempCodeRunnerFile }
Numbers between 100 and 200 that are divisible by 3 and 5:
105
120
135
150
165
180
195
```

The taskbar at the bottom shows various pinned icons and the system clock.

20. Find summation and average of all the numbers which are completely divisible by 3, 5 and 12 between 10 – 500. [Like 60 is divisible by all of those].

```
#include <stdio.h>
```

```
int main() {
    int sum = 0, count = 0;

    for (int i = 10; i <= 500; i++) {
        if (i % 3 == 0 && i % 5 == 0 && i % 12 == 0) {
            sum += i;
            count++;
        }
    }

    double average = (double) sum / count;

    printf("Sum of numbers: %d\n", sum);
    printf("Average of numbers: %.2f\n", average);

    return 0;
}
```

```
}
```

```
File Edit Selection View Go Run Terminal Help ← → ⌂ A java practise
J Calculation.java J calt.java J Mycalculation.java J Vehicle.java J problem2.java JS test.js ⌂ test.html C problem1.c ⌂ CarJava J Student.java ⌂
oop > Capston > C problem1.c > ...
1 #include <stdio.h>
2
3 int main() {
4     int sum = 0, count = 0;
5
6     for (int i = 10; i <= 500; i++) {
7         if (i % 3 == 0 && i % 5 == 0 && i % 12 == 0) {
8             sum += i;
9             count++;
10        }
11    }
12
13     double average = (double) sum / count;
14 }

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS ⌂ Code + ⌂ Search ⌂ Go Live ⌂ Port: 5500 Win32 ⌂ Go Live ⌂
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
Sum of numbers: 2160
Average of numbers: 270.00
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

21. Suppose you are going to apply for admission in a college. If you got GPA 5 in SSC exam then you can apply for that college. Now give your GPA as input from the keyboard and print "YES" if you can apply otherwise print "NO".

```
#include <stdio.h>
```

```
int main() {
    float gpa;

    printf("Enter your GPA: ");
    scanf("%f", &gpa);

    if (gpa == 5.0) {
        printf("YES, you can apply for admission.\n");
    } else {
        printf("NO, you cannot apply for admission.\n");
    }

    return 0;
}
```

A screenshot of a Windows desktop environment. At the top, there's a taskbar with icons for File Explorer, Edge browser, File Explorer again, and Task View. Below the taskbar is a terminal window titled 'A java practise' with the following content:

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { ./tempCodeRunnerFile }
Enter your GPA: 3.75
NO, you cannot apply for admission.
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

The terminal window has a green status bar at the bottom showing 'Ln 17, Col 1 (291 selected) Spaces: 4 UTF-8 CRLF'. Above the terminal is a code editor window showing a C program. The code includes an include directive, a main function that prompts for a float input, and an if statement that prints 'YES' if the GPA is 5.0 and 'NO' otherwise.

22. You are going to open a bank account . If your age is greater than 18 then you can open an account. Get your age by input and print "Yes" if you can open an account otherwise print "No".

```
#include <stdio.h>
```

```
int main() {
    int age;

    printf("Enter your age: ");
    scanf("%d", &age);

    if (age > 18) {
        printf("Yes, you can open a bank account.\n");
    } else {
        printf("No, you cannot open a bank account.\n");
    }

    return 0;
}
```

The screenshot shows the Visual Studio Code interface with the following details:

- File Explorer:** Shows files like Calculation.java, cal1.java, Mycalculation.java, Vehicle.java, problem2.java, test.js, test.html, problem1.c (the active file), Car.java, and Student.java.
- Code Editor:** Displays a C program named problem1.c:

```
5 printf("Enter your age: ");
6 scanf("%d", &age);
7
8 if (age > 18) {
9     printf("Yes, you can open a bank account.\n");
10 } else {
11     printf("No, you cannot open a bank account.\n");
12 }
13
14
15 return 0;
16 }
```
- Terminal:** Shows the command line output:

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { ./tempCodeRunnerFile }
Enter your age: 20
Yes, you can open a bank account.
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```
- System Tray:** Shows currency exchange rates (USD/GBP +0.59%), system icons, and a taskbar with various application icons.

23. Write a program to display "A" to "Z" using loop .

```
#include <stdio.h>
```

```
int main() {
    printf("Alphabets from A to Z:\n");
    for (char ch = 'A'; ch <= 'Z'; ch++) {
        printf("%c ", ch);
    }
    printf("\n");

    return 0;
}
```

A screenshot of the Visual Studio Code interface. The terminal at the bottom shows the command `cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunner.c -o tempCodeRunnerFile } ; if (?) { ./tempCodeRunnerFile }` being run, which prints the alphabets from A to Z. The status bar at the bottom right shows the date and time as 11/15/2023 10:51 PM.

```
#include <stdio.h>
int main() {
    printf("Alphabets from A to Z:\n");
    for (char ch = 'A'; ch <= 'Z'; ch++) {
        printf("%c ", ch);
    }
    printf("\n");
}
return 0;
```

24. Write a program to produce the following output using loop

1 2 4 3 6 9 4 8 12 16 5 10 15 20

25 6 12 18 24 30 36

```
#include <stdio.h>
```

```
int main() {
    int rows;

    printf("Enter the number of rows: ");
    scanf("%d", &rows);

    for (int i = 1; i <= rows; i++) {
        int value = i;
        for (int j = 1; j <= i; j++) {
            printf("%d ", value);
            value += i;
        }
        printf("\n");
    }

    return 0;
}
```

```
}
```

The screenshot shows a Windows desktop environment with a terminal window open in VS Code. The terminal window displays the following content:

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { ./tempCodeRunnerFile }
Enter the number of rows: 6
1
2 4
3 6 9
4 8 12 16
5 10 15 20 25
6 12 18 24 30 36
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

The terminal window is part of the VS Code interface, which also includes a sidebar with file icons and a bottom status bar showing system information like battery level, temperature, and network status.

25..Write a program which will display all the prime numbers between 0 to N(N will be given by the user). If user gives N = 20, your code will print the following output 2 3 5 7 11 13 17 19

```
#include <stdio.h>

int main() {
    int rows;

    printf("Enter the number of rows: ");
    scanf("%d", &rows);

    for (int i = 1; i <= rows; i++) {
        int value = i;
        for (int j = 1; j <= i; j++) {
            printf("%d ", value);
            value += i;
        }
        printf("\n");
    }

    return 0;
}
```

```
}
```

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston\" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { .\tempCodeRunnerFile }
Enter the number of rows: 6
1
2 4
3 6 9
4 8 12 16
5 10 15 20 25
6 12 18 24 30 36
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

1. Write a program to print the following output: Hello world!!!

```
#include <stdio.h>
```

```
int main() {
    printf("Hello world!!!\n");
    return 0;
}
```

A screenshot of the Visual Studio Code (VS Code) interface. The main area shows a C file named "problem1.c" with the following code:

```
1 #include <stdio.h>
2
3 int main() {
4     printf("Hello world!!!\n");
5     return 0;
6 }
7
```

The terminal at the bottom shows the command line output:

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { .\tempCodeRunnerFile }
Hello world!!!
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

2. Write a code to print the following output: Name: Mr. X Univ: University of Dhaka

```
#include <stdio.h>
```

```
int main() {
    printf("Name: Mr. X Univ: University of Dhaka\n");
    return 0;
}
```

```
#include <stdio.h>
int main() {
    printf("Name: Mr. X Univ: University of Dhaka\n");
    return 0;
}
```

PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { ./tempCodeRunnerFile }
Name: Mr. X Univ: University of Dhaka
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>

3. Write a program to print the following output: * *** ***** ***** * **** *

```
#include <stdio.h>
```

```
int main() {
    int rows = 5;

    for (int i = 1; i <= rows; i++) {
        for (int j = 1; j <= i * 2 - 1; j++) {
            printf("*");
        }
        printf("\n");
    }

    return 0;
}
```

The screenshot shows a code editor interface with a dark theme. In the center, there is a code editor window displaying a C program. The code defines a function named `main` that prints a diamond pattern of asterisks. The code uses nested loops to achieve this. Below the code editor, there is a terminal window showing the command line and the output of the program. The terminal window has tabs at the top, one of which is labeled "TERMINAL". The output in the terminal shows the diamond pattern being printed.

```
int main() {
    int rows = 5;
    for (int i = 1; i <= rows; i++) {
        for (int j = 1; j <= i * 2 - 1; j++) {
            printf("*");
        }
        printf("\n");
    }
    return 0;
}

PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
*
*****
*****
*****
*****
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

4. Take three integer variables a, b and c. Assign values to the variables- a = 10, b = 20 and c = 30; Now print the sum of these three variables

```
#include <stdio.h>
```

```
int main() {
    int a = 10, b = 20, c = 30;
    int sum = a + b + c;

    printf("Sum of a, b, and c: %d\n", sum);

    return 0;
}
```

```
#include <stdio.h>
int main() {
    int a = 10, b = 20, c = 30;
    int sum = a + b + c;
    printf("Sum of a, b, and c: %d\n", sum);
    return 0;
}

PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { .\tempCodeRunnerFile }
Sum of a, b, and c: 60
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

5. Read 2 integer values and store them in variables, named A and B and make the sum of these two variables, assigning its result to the variable X. Print X as shown below. The input file contains 2 integer values. A=10, B=9.

```
#include <stdio.h>
```

```
int main() {
    int A, B, X;
    printf("Enter values for A and B: ");
    scanf("%d %d", &A, &B);
```

```
X = A + B;
```

```
printf("X = %d\n", X);
```

```
return 0;
```

```
}
```

```

1 #include <stdio.h>
2
3 int main() {
4     int A, B, X;
5
6     printf("Enter values for A and B: ");
7     scanf("%d %d", &A, &B);
8
9     X = A + B;
10
11    printf("X = %d\n", X);
12
13    return 0;
14 }

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { .\tempCodeRunnerFile }

Enter values for A and B: 2 3

X = 5

PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>

6. The formula to calculate the area of a circumference is defined as $A = \pi \cdot R^2$. Considering to this problem that $\pi = 3.14159$:

#include <stdio.h>

```

int main() {
    double R = 2.0;
    double A;

    A = 3.14159 * R * R;

    printf("Area of the circumference: %.4lf\n", A);

    return 0;
}

```

```
#include <stdio.h>
int main() {
    double R = 2.0;
    double A;
    A = 3.14159 * R * R;
    printf("Area of the circumference: %.4lf\n", A);
    return 0;
}
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { .\tempCodeRunnerFile }
Area of the circumference: 12.5664
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

7. Read two floating points' values of double precision A and B, corresponding to two student's grades. After this, calculate the student's average, considering that grade A has weight 3.5 and B has weight 7.5. Each grade can be from zero to ten, always with one digit after the decimal point.

```
#include <stdio.h>
```

```
int main() {
    double A, B, average;

    printf("Enter grades A and B: ");
    scanf("%lf %lf", &A, &B);

    average = (A * 3.5 + B * 7.5) / (3.5 + 7.5);

    printf("Average: %.5lf\n", average);

    return 0;
}
```

```

1 #include <stdio.h>
2
3 int main() {
4     double A, B, average;
5
6     printf("Enter grades A and B: ");
7     scanf("%lf %lf", &A, &B);
8
9     average = (A * 3.5 + B * 7.5) / (3.5 + 7.5);
10
11    printf("Average: %.5lf\n", average);
12
13    return 0;
14 }

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { ./tempCodeRunnerFile }

Enter grades A and B: 2 3

Average: 2.68182

PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>

8. Read three values (variables A=5.0, B=6.0 and C=7.0), which are the three student's grades. Then, calculate the average, considering that grade A has weight 2, grade B has weight 3 and the grade C has weight 5. Consider that each grade can go from 0 to 10.0, always with one decimal place. Output: Average=6.3

#include <stdio.h>

```

int main() {
    double A = 5.0, B = 6.0, C = 7.0;
    double average;

    average = (A * 2 + B * 3 + C * 5) / (2 + 3 + 5);

    printf("Average: %.1lf\n", average);

    return 0;
}

```

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { ./tempCodeRunnerFile }
Enter grades A and B: 2 3
Average: 2.66666
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

9. Read four integer values named A, B, C and D. Calculate and print the difference of product A and B by the product of C and D ($A * B - C * D$).

```
#include <stdio.h>
```

```
int main() {
    int A, B, C, D;

    printf("Enter values for A, B, C, and D: ");
    scanf("%d %d %d %d", &A, &B, &C, &D);

    int difference = A * B - C * D;

    printf("Difference of product A and B by the product of C and D: %d\n", difference);

    return 0;
}
```

The screenshot shows a code editor interface with a dark theme. The main area displays a C program named 'problem1.c'. The code includes #include <stdio.h>, main() function with variable declarations A, B, C, D, and calculations for their product differences. Below the code editor is a terminal window showing the execution of the program. The terminal output shows the command 'cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston"', compilation with 'gcc tempCodeRunnerFile.c -o tempCodeRunnerFile', running the program with input '2 3 6 8', and the resulting output 'Difference of product A and B by the product of C and D: -42'. The system tray at the bottom indicates a temperature of 25°C and a haze warning.

```

1 #include <stdio.h>
2
3 int main() {
4     int A, B, C, D;
5
6     printf("Enter values for A, B, C, and D: ");
7     scanf("%d %d %d %d", &A, &B, &C, &D);
8
9     int difference = A * B - C * D;
10
11     printf("Difference of product A and B by the product of C and D: %d\n", difference);
12
13     return 0;
14 }

```

```

PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston"
PS C:\Users\fahim\OneDrive\Documents\A java practise> gcc tempCodeRunnerFile.c -o tempCodeRunnerFile
PS C:\Users\fahim\OneDrive\Documents\A java practise> ./tempCodeRunnerFile
Enter values for A, B, C, and D: 2 3 6 8
Difference of product A and B by the product of C and D: -42
PS C:\Users\fahim\OneDrive\Documents\A java practise>

```

10. Write a program that reads an employee's number, his/her worked hours number in a month and the amount he received per hour. Print the employee's number and salary that he/she will receive at end of the month, with two decimal places. Input Samples: 25 100 5.50 Output:

NUMBER = 25 SALARY = U\$ 550.00

#include <stdio.h>

```

int main() {
    int employeeNumber;
    double hoursWorked, hourlyRate, salary;

    printf("Enter employee number, hours worked, and hourly rate: ");
    scanf("%d %lf %lf", &employeeNumber, &hoursWorked, &hourlyRate);

    salary = hoursWorked * hourlyRate;

    printf("NUMBER = %d SALARY = U$ %.2lf\n", employeeNumber, salary);

    return 0;
}

```

```

File Edit Selection View Go Run Terminal Help ← → ⌂ A java practise
File Edit Selection View Go Run Terminal Help ← → ⌂ A java practise
J Calculation.java J cal1.java J Mycalculation.java J Vehicle.java J problem2.java JS test.js ⌂ test.html C problem1.c X J Car.java J Student.java ⌂
oop > Capston > C problem1.c ...
3 int main() {
4     int employeeNumber;
5     double hoursWorked, hourlyRate, salary;
6
7     printf("Enter employee number, hours worked, and hourly rate: ");
8     scanf("%d %lf %lf", &employeeNumber, &hoursWorked, &hourlyRate);
9
10    salary = hoursWorked * hourlyRate;
11
12    printf("NUMBER = %d SALARY = U$ %.2lf\n", employeeNumber, salary);
13
14    return 0;
15 }

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
Enter employee number, hours worked, and hourly rate: 2 2.2 3.6
NUMBER = 2 SALARY = U$ 7.92
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston> ⌂

```

11. Take four double variables x , y , z and avg . Assign values to x , y and z as you want. Now calculate the average of x , y and z and assign it to avg . Finally print the average value likeAverage of x , y and z is: —

```
#include <stdio.h>
```

```
int main() {
    double x, y, z, avg;

    // Assign values to x, y, and z
    x = 10.5;
    y = 20.3;
    z = 15.8;

    // Calculate the average
    avg = (x + y + z) / 3;

    // Print the average
    printf("Average of x, y, and z is: %.2lf\n", avg);

    return 0;
}
```

```
}
```

```
#include <stdio.h>
int main() {
    double x, y, z, avg;
    // Assign values to x, y, and z
    x = 10.5;
    y = 20.3;
    z = 15.8;
    // Calculate the average
    avg = (x + y + z) / 3;
    // Print the average
}
```

PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (\$?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (\$?) { .\tempCodeRunnerFile }
Average of x, y, and z is: 15.53
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>

12. Print “Bangladesh” without quotation sign by using ascii values. [Use the given ascii valuesB=66, a=97, n=110, g=103, l=108, a=97, d=100, e=101, s=115, h=104.

```
#include <stdio.h>
```

```
int main() {
    printf("%c%c%c%c%c%c%c%c\n", 66, 97, 110, 103, 108, 97, 100, 101, 115, 104);

    return 0;
}
```

A screenshot of a Windows desktop environment. At the top, there is a taskbar with various icons. Below the taskbar, a terminal window is open with the following command and output:

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { .\tempCodeRunnerFile }
Bangladesh
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

The background shows a code editor with several files listed in the sidebar and a main editor area containing C code. The code includes an include directive, a main function that prints a series of numbers, and a return statement.

13. Make a program that reads a seller's name, his/her fixed salary and the sale's total made by himself/herself in the month (in money). Considering that this seller receives 15% over all products sold, write the final salary (total) of this seller at the end of the month, with two decimal places. Input Samples: JOAO 500.00 1230.30 Output Samples: TOTAL = R\$ 684.54

#include <stdio.h>

```
int main() {
    char sellerName[50];
    double fixedSalary, totalSales, finalSalary;

    printf("Enter seller's name, fixed salary, and total sales: ");
    scanf("%s %lf %lf", sellerName, &fixedSalary, &totalSales);

    // Calculate final salary (including 15% of total sales)
    finalSalary = fixedSalary + 0.15 * totalSales;

    printf("TOTAL = R$ %.2lf\n", finalSalary);

    return 0;
}
```

```

1 #include <stdio.h>
2
3 int main() {
4     char sellerName[50];
5     double fixedSalary, totalSales, finalSalary;
6
7     printf("Enter seller's name, fixed salary, and total sales: ");
8     scanf("%s %lf %lf", sellerName, &fixedSalary, &totalSales);
9
10    // Calculate final salary (including 15% of total sales)
11    finalSalary = fixedSalary + 0.15 * totalSales;
12
13    printf("TOTAL = R$ %.2lf\n", finalSalary);
14

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { .\tempCodeRunnerFile }
Enter seller's name, fixed salary, and total sales: 2 3.5 2.2
TOTAL = R\$ 3.83
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>

14. Rahul got 65.00 on physics, 83.50 on mathematics, 85.75 on C programming and 67.50 on English. Now write a program to calculate the average of his marks on 4 subjects and print it up to 2 digits after the decimal point. [The result should look like: XX.XX]

#include <stdio.h>

```

int main() {
    double physics = 65.00, mathematics = 83.50, cProgramming = 85.75, english = 67.50;
    double average;

    // Calculate the average
    average = (physics + mathematics + cProgramming + english) / 4;

    // Print the average
    printf("Average of marks: %.2lf\n", average);

    return 0;
}

```

```

File Edit Selection View Go Run Terminal Help ← → ⌂ A java practise
File Edit Selection View Go Run Terminal Help ← → ⌂ A java practise
Calculation.java cal1.java Mycalculation.java Vehicle.java problem2.java test.js test.html problem1.c Car.java Student.java
oop > Capston > C problem1.c > main()
1 #include <stdio.h>
2
3 int main() {
4     double physics = 65.00, mathematics = 83.50, cProgramming = 85.75, english = 67.50;
5     double average;
6
7     // Calculate the average
8     average = (physics + mathematics + cProgramming + english) / 4;
9
10    // Print the average
11    printf("Average of marks: %.2lf\n", average);
12
13    return 0;
14

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { .\tempCodeRunnerFile }
Average of marks: 75.44
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>

```

15. In this problem, the task is to read a code of a product 1, the number of units of product 1, the price for one unit of product 1, the code of a product 2, the number of units of product 2 and the price for one unit of product 2. After this, calculate and show the amount to be paid.

Input Samples: 12 1 5.30 16 2 5.10 Output Sample: VALOR A PAGAR: R\$ 15.50

#include <stdio.h>

```

int main() {
    int code1, units1, code2, units2;
    double price1, price2, amount;

    printf("Enter code, units, and price for product 1: ");
    scanf("%d %d %lf", &code1, &units1, &price1);

    printf("Enter code, units, and price for product 2: ");
    scanf("%d %d %lf", &code2, &units2, &price2);

    // Calculate the amount to be paid
    amount = (units1 * price1) + (units2 * price2);

    printf("VALOR A PAGAR: R$ %.2lf\n", amount);
}

```

```
    return 0;  
}
```

```
File Edit Selection View Go Run Terminal Help ← → A Java practise  
Calculation.java J cal1.java J Mycalculation.java J Vehicle.java J problem2.java JS test.js O test.html C problem1.c X J Car.java J Student.java  
oop > Capston > C problem1.c > ...  
3 int main() {  
4     int code1, units1, code2, units2;  
5     double price1, price2, amount;  
6  
7     printf("Enter code, units, and price for product 1: ");  
8     scanf("%d %d %lf", &code1, &units1, &price1);  
9  
10    printf("Enter code, units, and price for product 2: ");  
11    scanf("%d %d %lf", &code2, &units2, &price2);  
12  
13    // Calculate the amount to be paid  
14    amount = (units1 * price1) + (units2 * price2);  
15  
16    printf("VALOR A PAGAR: R$ %.2f\n", amount);  
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS  
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston\" ; if ($?) { gcc t  
empCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }  
Enter code, units, and price for product 1: 12 22 33  
Enter code, units, and price for product 2: 25 66 33  
VALOR A PAGAR: R$ 2904.00  
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

The screenshot shows a code editor with a C program for calculating the total amount of two products. The code uses printf and scanf for input and a calculation loop. Below the editor is a terminal window showing the execution of the program with user input and output.

16. Take two integer variables $i = 0$ and $j = 0$. Now write the output of the following program without running the code. 17. Take four integer variables a, b, x and y . Scan the values of the variables from user using scanf() function. Now print the output of the following equation:
$$(a * b) + (x * y)$$

```
#include <stdio.h>
```

```
int main() {  
    int a, b, x, y;  
  
    // Scan values of variables  
    printf("Enter values for a, b, x, and y: ");  
    scanf("%d %d %d %d", &a, &b, &x, &y);  
  
    // Calculate and print the output of the equation  
    printf("Result of (a * b) + (x * y): %d\n", (a * b) + (x * y));  
  
    return 0;
```

```
}
```

18. Take temperature of Dhaka city as input in Celsius scale from the user using scanf() function and convert it to Fahrenheit and print it.[Formula: $F = C(9/5) + 32$]

```
#include <stdio.h>
```

```
int main() {
    double celsius, fahrenheit;

    // Input temperature in Celsius
    printf("Enter temperature in Celsius: ");
    scanf("%lf", &celsius);

    // Convert to Fahrenheit
    fahrenheit = celsius * (9.0 / 5.0) + 32;

    // Print the result
    printf("Temperature in Fahrenheit: %.2lf\n", fahrenheit);

    return 0;
}
```

```
J Calculation.java J cal1.java J Mycalculation.java J Vehicle.java J problem2.java JS test.js C problem1.c X J Car.java J Student.java
oop > Capston > C problem1.c > ...
6     // Input temperature in Celsius
7     printf("Enter temperature in Celsius: ");
8     scanf("%lf", &celsius);
9
10    // Convert to Fahrenheit
11    fahrenheit = celsius * (9.0 / 5.0) + 32;
12
13    // Print the result
14    printf("Temperature in Fahrenheit: %.2lf\n", fahrenheit);
15
16    return 0;
17
18

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
```

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
Enter temperature in Celsius: 22
Temperature in Fahrenheit: 71.60
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

⑧
⑨
X 24°C Haze

Search Ln 18, Col 1 (372 selected) Spaces: 4 UTF-8 CRLF ⌂ Go Live ⌂ Port: 5500 Win32 ⌂ Go Live

11:20 PM 11/15/2023

19. Take a small letter alphabet as input from the user and print the capital version of that letter.

[If user gives input 'a' you should print 'A']

```
#include <stdio.h>
```

```
int main() {
    char smallLetter, capitalLetter;

    // Input a small letter alphabet
    printf("Enter a small letter alphabet: ");
    scanf(" %c", &smallLetter);

    // Convert to capital letter
    capitalLetter = smallLetter - 32;

    // Print the capital letter
    printf("Capital letter: %c\n", capitalLetter);

    return 0;
}
```

The screenshot shows a code editor interface with a dark theme. The file tab at the top has "problem1.c" selected. The code editor window displays the C program provided above. Below the code editor is a terminal window showing the execution of the program. The terminal output is as follows:

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston\" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { .\tempCodeRunnerFile }
Enter a small letter alphabet: s
Capital letter: S
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

The status bar at the bottom of the terminal window shows the current directory as "C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston", along with other system information like battery level, temperature, and network status.

20. Make a program that calculates and shows the volume of a sphere being provided the value of its radius (R). The formula to calculate the volume is: $(4/3) * \pi * R^3$. Consider (assign) for pi the value 3.14159. Tip: Use (4/3.0) or (4.0/3) in your formula, because some languages (including C++) assume that the division's result between two integers is another integer. Input sample: 3
Output Sample: VOLUME = 113.097

```
#include <stdio.h>
#include <math.h>

int main() {
    double radius, volume;

    // Input radius of the sphere
    printf("Enter the radius of the sphere: ");
    scanf("%lf", &radius);

    // Calculate the volume
    volume = (4.0 / 3.0) * M_PI * pow(radius, 3);

    // Print the volume
    printf("VOLUME = %.3f\n", volume);

    return 0;
}
```

```

File Edit Selection View Go Run Terminal Help ← → ⌂ A java practise
Calculation.java cal1.java Mycalculation.java Vehicle.java problem2.java test.js test.html problem1.c Car.java Student.java
oop > Capston > C problem1.c > main()
1 #include <stdio.h>
2 #include <math.h>
3
4 int main() {
5     double radius, volume;
6
7     // Input radius of the sphere
8     printf("Enter the radius of the sphere: ");
9     scanf("%lf", &radius);
10
11    // Calculate the volume
12    volume = (4.0 / 3.0) * 3.1416 * pow(radius, 3);
13
14    // Print the volume
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { ./tempCodeRunnerFile }
Enter the radius of the sphere: 5
VOLUME = 523.600
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston> █

```

21. Suppose you are going to apply for admission in a college. If you got GPA 5 in SSC exam then you can apply for that college. Now give your GPA as input from the keyboard and print "YES" if you can apply otherwise print "NO".

```
#include <stdio.h>
```

```

int main() {
    float gpa;

    printf("Enter your GPA: ");
    scanf("%f", &gpa);

    if (gpa == 5.0) {
        printf("YES, you can apply for admission.\n");
    } else {
        printf("NO, you cannot apply for admission.\n");
    }

    return 0;
}
```

The screenshot shows a Visual Studio Code interface with the following details:

- File Explorer:** Shows files like Calculation.java, cal1.java, Mycalculation.java, Vehicle.java, problem2.java, test.js, test.html, problem1.c (the active file), Car.java, and Student.java.
- Code Editor:** Displays a C program named problem1.c. The code reads a GPA from the user and prints whether they can apply for admission or not.
- Terminal:** Shows the command-line output of running the program. It includes the command to change directory, compile with gcc, run the temporary code runner, and the resulting output where it asks for a GPA of 3.4 and says "NO, you cannot apply for admission."
- Taskbar:** Shows system icons for battery, signal, and temperature (24°C Haze).
- System Tray:** Shows icons for search, calendar, and notifications.

22. Make a program that reads three floating point values: A, B and C. Then, calculate and show:

- the area of the rectangled triangle that has base A and height C.
- the area of the radius's circle C. ($\pi = 3.14159$)
- the area of the trapezium which has A and B by base, and C by height.
- the area of the square that has side B.
- the area of the rectangle that has sides A and B.

```
#include <stdio.h>
```

```
#include <math.h>
```

```
int main() {
    float A, B, C;
    float areaTriangle, areaCircle, areaTrapezium, areaSquare, areaRectangle;

    printf("Enter three floating point values A, B, and C: ");
    scanf("%f %f %f", &A, &B, &C);

    // Calculate areas
    areaTriangle = 0.5 * A * C;
    areaCircle = M_PI * pow(C, 2);
    areaTrapezium = 0.5 * (A + B) * C;
    areaSquare = pow(B, 2);
    areaRectangle = A * B;
```

```

// Print the areas
printf("a) Area of the rectangle triangle: %.2f\n", areaTriangle);
printf("b) Area of the circle: %.2f\n", areaCircle);
printf("c) Area of the trapezium: %.2f\n", areaTrapezium);
printf("d) Area of the square: %.2f\n", areaSquare);
printf("e) Area of the rectangle: %.2f\n", areaRectangle);

return 0;
}

```

```

File Edit Selection View Go Run Terminal Help ← → ⌂ A java practise
Calculation.java cal1.java Mycalculation.java Vehicle.java problem2.java test.js test.html problem1.c Car.java Student.java
oop > Capston > C problem1.c > ...
1 #include <stdio.h>
2 #include <math.h>
3
4 int main() {
5     float A, B, C;
6     float areaTriangle, areaCircle, areaTrapezium, areaSquare, areaRectangle;
7
8     printf("Enter three floating point values A, B, and C: ");
9     scanf("%f %f %f", &A, &B, &C);
10
11     // Calculate areas
12     areaTriangle = 0.5 * A * C;
13     areaCircle = 3.1416 * pow(C, 2);
14     areaTrapezium = 0.5 * (A + B) * C;

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Code + □ ⌂ ... ^ x
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
Enter three floating point values A, B, and C: 5 6 3
a) Area of the rectangle triangle: 7.50
b) Area of the circle: 28.27
c) Area of the trapezium: 16.50
d) Area of the square: 36.00
e) Area of the rectangle: 30.00
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>

```

23. Take a value from user and assume that- it is the number of his math exam. Now you have to write a program which shows the grade depending on the given scale. (A+: 80-100, A: 70-79, A- : 60-69, B: 50-59, C: 40-49, D :33-39 ,F :0-32)

```
#include <stdio.h>
```

```

int main() {
    int mathExam;

    printf("Enter your math exam score: ");
    scanf("%d", &mathExam);

```

```
if (mathExam >= 80 && mathExam <= 100) {
    printf("Grade: A+\n");
} else if (mathExam >= 70 && mathExam < 80) {
    printf("Grade: A\n");
} else if (mathExam >= 60 && mathExam < 70) {
    printf("Grade: A-\n");
} else if (mathExam >= 50 && mathExam < 60) {
    printf("Grade: B\n");
} else if (mathExam >= 40 && mathExam < 50) {
    printf("Grade: C\n");
} else if (mathExam >= 33 && mathExam < 40) {
    printf("Grade: D\n");
} else if (mathExam >= 0 && mathExam < 33) {
    printf("Grade: F\n");
} else {
    printf("Invalid input\n");
}

return 0;
}
```

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { ./tempCodeRunnerFile }
Enter your math exam score: 6.2
Grade: F
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

24. Calculate a car's average consumption being provided the total distance traveled (in Km) and the spent fuel total (in liters). Input Sample: 500 35.0 Output Sample: 14.286 km/l

```
#include <stdio.h>
```

```
int main() {
    float distance, fuel;
    float averageConsumption;

    printf("Enter total distance traveled (in Km) and spent fuel total (in liters): ");
    scanf("%f %f", &distance, &fuel);

    // Calculate average consumption
    averageConsumption = distance / fuel;

    printf("Average consumption: %.3f km/l\n", averageConsumption);

    return 0;
}
```

A screenshot of the Visual Studio Code interface. The top bar shows the menu: File, Edit, Selection, View, Go, Run, Terminal, Help. The title bar reads "A java practise". The left sidebar shows project files: Calculation.java, cal1.java, Mycalculation.java, Vehicle.java, problem2.java, test.js, test.html, problem1.c (selected), Car.java, Student.java. The main editor area contains a C program:

```
1 #include <stdio.h>
2
3 int main() {
4     float distance, fuel;
5     float averageConsumption;
6
7     printf("Enter total distance traveled (in Km) and spent fuel total (in liters): ");
8     scanf("%f %f", &distance, &fuel);
9
10    // Calculate average consumption
11    averageConsumption = distance / fuel;
12
13    printf("Average consumption: %.3f km/l\n", averageConsumption);
14 }
```

The terminal window below shows the execution of the code:

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { ./tempCodeRunnerFile }
Enter total distance traveled (in Km) and spent fuel total (in liters): 5 6
Average consumption: 0.833 km/l
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

25. You are going to open a bank account. If your age is greater than 18 then you can open an account. Get your age by input and print "Yes" if you can open an account otherwise print "No".

```
#include <stdio.h>
```

```
int main() {
    int age;

    printf("Enter your age: ");
    scanf("%d", &age);

    if (age > 18) {
        printf("Yes, you can open a bank account.\n");
    } else {
        printf("No, you cannot open a bank account.\n");
    }

    return 0;
}
```

```

File Edit Selection View Go Run Terminal Help ← → ⌂ A java practise
File Edit Selection View Go Run Terminal Help ← → ⌂ A java practise
Calculation.java cal1.java Mycalculation.java Vehicle.java problem2.java test.js test.html problem1.c Car.java Student.java
oop > Capston > C problem1.c ...
1 #include <stdio.h>
2
3 int main() {
4     int age;
5
6     printf("Enter your age: ");
7     scanf("%d", &age);
8
9     if (age > 18) {
10        printf("Yes, you can open a bank account.\n");
11    } else {
12        printf("No, you cannot open a bank account.\n");
13    }
14 }

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Code + ▾ ⌂ ... ^ x
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { ./tempCodeRunnerFile }
Enter your age: 17
No, you cannot open a bank account.
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston> ⌂

```

26. Write a program which determines whether a number is ODD or EVEN.

#include <stdio.h>

```

int main() {
    int number;

    printf("Enter an integer: ");
    scanf("%d", &number);

    if (number % 2 == 0) {
        printf("EVEN\n");
    } else {
        printf("ODD\n");
    }

    return 0;
}

```

The screenshot shows a Microsoft Visual Studio Code (VS Code) interface. The terminal window at the bottom displays the following command-line session:

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { .\tempCodeRunnerFile }
Enter your age: 17
No, you cannot open a bank account.
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

The code editor window shows a C program named `problem1.c` with the following content:

```
1 #include <stdio.h>
2
3 int main() {
4     int age;
5
6     printf("Enter your age: ");
7     scanf("%d", &age);
8
9     if (age > 18) {
10        printf("Yes, you can open a bank account.\n");
11    } else {
12        printf("No, you cannot open a bank account.\n");
13    }
14}
```

27. Take an integer number as input from user and print "Yes" if the number is divisible by 3 and 5. And print "No" if the number is not.

```
#include <stdio.h>
```

```
int main() {
    int number;

    printf("Enter an integer: ");
    scanf("%d", &number);

    if (number % 3 == 0 && number % 5 == 0) {
        printf("Yes\n");
    } else {
        printf("No\n");
    }

    return 0;
}
```

```

File Edit Selection View Go Run Terminal Help ← → ⌂ A java practise
File Calculation.java cal1.java Mycalculation.java Vehicle.java problem2.java test.js test.html C problem1.c Car.java Student.java
oop > Capston > C problem1.c > main()
1 #include <stdio.h>
2
3 int main() {
4     int number;
5
6     printf("Enter an integer: ");
7     scanf("%d", &number);
8
9     if (number % 3 == 0 && number % 5 == 0) {
10         printf("Yes\n");
11     } else {
12         printf("No\n");
13     }
14 }

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Code + ⊞ ⊖ ⌂ ... ^ ×
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { ./tempCodeRunnerFile }
Enter an integer: 3
No
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston> ⌂

```

28. Read the four values corresponding to the x and y axes of two points in the plane, p1 (x_1, y_1) and p2 (x_2, y_2) and calculate the distance between them, showing four decimal places after the comma, according to the formula: Distance =

```
#include <stdio.h>
#include <math.h>
```

```
int main() {
    float x1, y1, x2, y2;
    float distance;

    printf("Enter coordinates (x1, y1) and (x2, y2): ");
    scanf("%f %f %f %f", &x1, &y1, &x2, &y2);

    // Calculate distance
    distance = sqrt(pow((x2 - x1), 2) + pow((y2 - y1), 2));

    // Print the distance
    printf("Distance: %.4f\n", distance);

    return 0;
}
```

```
}
```

The screenshot shows a code editor window with the title bar "A java practise". The menu bar includes File, Edit, Selection, View, Go, Run, Terminal, Help. The terminal tab shows the command line output:

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
Enter coordinates (x1, y1) and (x2, y2): 2 3 9.2 6.2
Distance: 7.8791
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

The code editor displays a C program named "problem1.c" with the following content:

```
#include <stdio.h>
#include <math.h>
int main() {
    float x1, y1, x2, y2;
    float distance;
    printf("Enter coordinates (x1, y1) and (x2, y2): ");
    scanf("%f %f %f %f", &x1, &y1, &x2, &y2);
    // Calculate distance
    distance = sqrt(pow((x2 - x1), 2) + pow((y2 - y1), 2));
    // Print the distance
}
```

The status bar at the bottom shows the terminal tab is active, along with other tabs like PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL, and PORTS.

29. Take 3 integers from user using `scanf()` function and write a program to find the maximum one.

```
#include <stdio.h>
```

```
int main() {
    int num1, num2, num3;

    printf("Enter three integers: ");
    scanf("%d %d %d", &num1, &num2, &num3);

    int max = (num1 > num2) ? ((num1 > num3) ? num1 : num3) : ((num2 > num3) ? num2 : num3);

    printf("Maximum: %d\n", max);

    return 0;
}
```

```

1 #include <stdio.h>
2
3 int main() {
4     int num1, num2, num3;
5
6     printf("Enter three integers: ");
7     scanf("%d %d %d", &num1, &num2, &num3);
8
9     int max = (num1 > num2) ? ((num1 > num3) ? num1 : num3) : ((num2 > num3) ? num2 : num3);
10
11    printf("Maximum: %d\n", max);
12
13    return 0;
14 }

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { ./tempCodeRunnerFile }

Enter three integers: 5 6 9

Maximum: 9

PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>

30. Two cars (X and Y) leave in the same direction. The car X leaves with a constant speed of 60 km/h and the car Y leaves with a constant speed of 90 km / h. In one hour (60 minutes) the car Y can get a distance of 30 kilometers from the X car, in other words, it can get away one kilometer for each 2 minutes. Read the distance (in km) and calculate how long it takes (in minutes) for the car Y to take this distance in relation to the other car.

```
#include <stdio.h>
```

```

int main() {
    int distance;
    int speedX = 60, speedY = 90;
    int time;

    printf("Enter the distance between the cars (in km): ");
    scanf("%d", &distance);

    // Calculate time
    time = (distance * 60) / (speedY - speedX);

    printf("Time taken for car Y to cover the distance: %d minutes\n", time);

    return 0;
}

```

```
#include <stdio.h>
int main() {
    int distance;
    int speedX = 60, speedY = 90;
    int time;
    printf("Enter the distance between the cars (in km): ");
    scanf("%d", &distance);
    time = (distance * 60) / (speedY - speedX);
    printf("Time taken for car Y to cover the distance: %d minutes\n", time);
}
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { .\tempCodeRunnerFile }
Enter the distance between the cars (in km): 6
Time taken for car Y to cover the distance: 12 minutes
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

31. Take a small letter alphabet as input and print whether it is VOWEL or CONSONANT.

```
#include <stdio.h>
```

```
int main() {
    char alphabet;

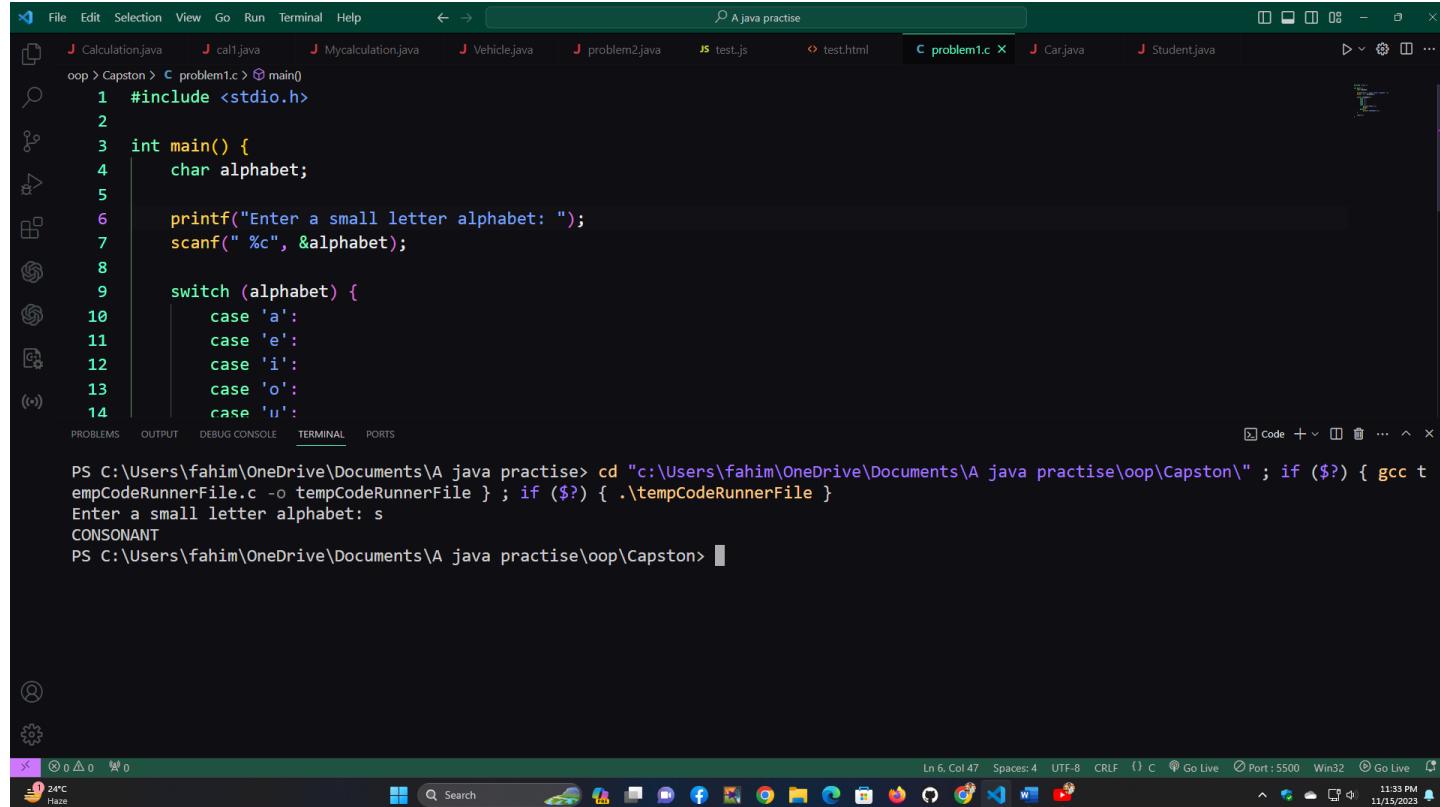
    printf("Enter a small letter alphabet: ");
    scanf(" %c", &alphabet);

    switch (alphabet) {
        case 'a':
        case 'e':
        case 'i':
        case 'o':
        case 'u':
            printf("VOWEL\n");
            break;
        default:
            printf("CONSONANT\n");
    }
}
```

```
}
```

```
return 0;
```

```
}
```



```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston\" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
Enter a small letter alphabet: s
CONSONANT
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

32. Little John wants to calculate and show the amount of spent fuel liters on a trip, using a car that does 12 Km/L. For this, he would like you to help him through a simple program. To perform the calculation, you have to read spent time (in hours) and the same average speed (km/h). In this way, you can get distance and then, calculate how many liters would be needed. Show with three decimal places after the point. input Sample: 10 85 Output: 70.833

```
#include <stdio.h>
```

```
int main() {
    float spentTime, averageSpeed;
    float distance, fuelNeeded;

    printf("Enter spent time (in hours) and average speed (km/h): ");
    scanf("%f %f", &spentTime, &averageSpeed);

    // Calculate distance
    distance = spentTime * averageSpeed;
```

```

// Calculate fuel needed
fuelNeeded = distance / 12;

// Print the result
printf("%.3f\n", fuelNeeded);

return 0;
}

```

```

File Edit Selection View Go Run Terminal Help ← → A java practise
J Calculation.java J cal1.java J Mycalculation.java J Vehicle.java J problem2.java JS test.js O test.html C problem1.c X J Car.java J Student.java D 08 - o ...
J Calculation.java J cal1.java J Mycalculation.java J Vehicle.java J problem2.java JS test.js O test.html C problem1.c X J Car.java J Student.java D 08 - o ...
1 #include <stdio.h>
2
3 int main() {
4     float spentTime, averageSpeed;
5     float distance, fuelNeeded;
6
7     printf("Enter spent time (in hours) and average speed (km/h): ");
8     scanf("%f %f", &spentTime, &averageSpeed);
9
10    // Calculate distance
11    distance = spentTime * averageSpeed;
12
13    // Calculate fuel needed
14    fuelNeeded = distance / 12;

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```

PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston\" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
Enter spent time (in hours) and average speed (km/h): 5.2 6.3
2.730
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>

```

33. Write a program that takes an integer as input [1 – 12] and print the corresponding month name. [If user gives input '1' you should print 'January'].

```
#include <stdio.h>
```

```

int main() {
    int month;

    printf("Enter a number between 1 and 12: ");
    scanf("%d", &month);

    switch (month) {

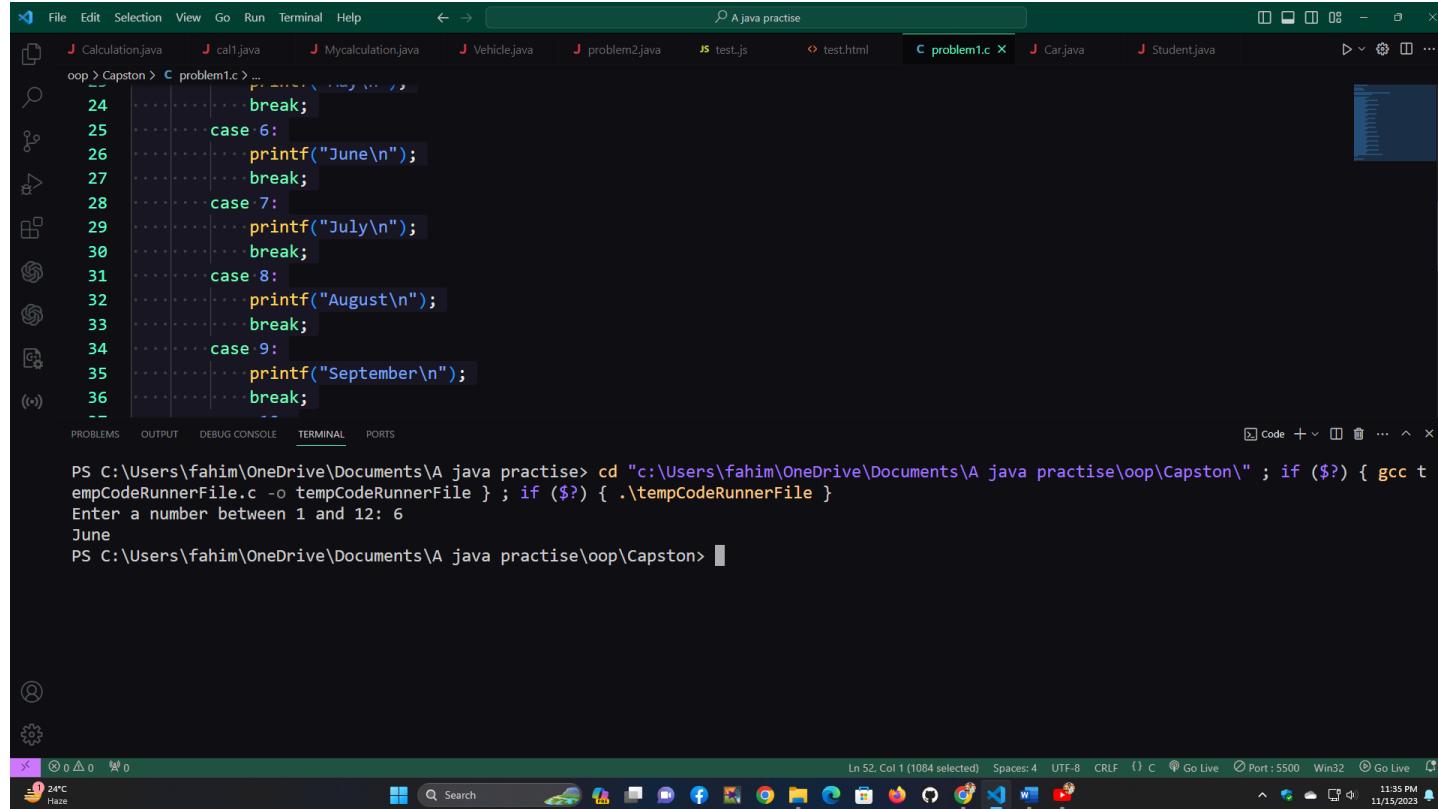
```

```
case 1:  
    printf("January\n");  
    break;  
case 2:  
    printf("February\n");  
    break;  
case 3:  
    printf("March\n");  
    break;  
case 4:  
    printf("April\n");  
    break;  
case 5:  
    printf("May\n");  
    break;  
case 6:  
    printf("June\n");  
    break;  
case 7:  
    printf("July\n");  
    break;  
case 8:  
    printf("August\n");  
    break;  
case 9:  
    printf("September\n");  
    break;  
case 10:  
    printf("October\n");  
    break;  
case 11:  
    printf("November\n");  
    break;  
case 12:  
    printf("December\n");  
    break;  
default:  
    printf("Invalid input\n");
```

```
}
```

```
return 0;
```

```
}
```



```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston\" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
Enter a number between 1 and 12: 6
June
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

34. You are given the rank and salary scale of a company
Rank – salary
1 – 2,50,000 BDT
2 – 2,10,000 BDT
3 – 1,50,000 BDT
4 – 80,000 BDT
 $>=5$ – 50,000 BDT
Now, take the rank as input from the user and print the salary of the given rank. [If user gives input '3' you should print 'Your Salary: 1,50,000 BDT']

```
#include <stdio.h>
```

```
int main() {
    int rank;

    printf("Enter your rank: ");
    scanf("%d", &rank);

    switch (rank) {
        case 1:
            printf("Your Salary: 2,50,000 BDT\n");
            break;
```

```

case 2:
    printf("Your Salary: 2,10,000 BDT\n");
    break;
case 3:
    printf("Your Salary: 1,50,000 BDT\n");
    break;
case 4:
    printf("Your Salary: 80,000 BDT\n");
    break;
default:
    printf("Your Salary: 50,000 BDT\n");
}

return 0;
}

```

The screenshot shows a code editor interface with a tab bar containing files like Calculation.java, cal1.java, Mycalculation.java, Vehicle.java, problem2.java, test.js, test.html, problem1.c (the active file), Car.java, and Student.java. The code in problem1.c is a switch statement based on rank, printing different salaries. Below the code editor is a terminal window showing the execution of the program. The terminal output is:

```

PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
Enter your rank: 6
Your Salary: 50,000 BDT
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>

```

35. Take two integers indicating the x and y coordinate of a two-dimensional graph paper where the center point is $x = 0$ and $y = 0$. Now print the quadrant of the given point. [If user gives input (4,5) you should print 'First quadrant'; If user gives input (-4, -5) you should print 'Third quadrant']

```
#include <stdio.h>
```

```
int main() {
    int x, y;

    printf("Enter the coordinates (x, y): ");
    scanf("%d %d", &x, &y);

    if (x > 0 && y > 0) {
        printf("First quadrant\n");
    } else if (x < 0 && y > 0) {
        printf("Second quadrant\n");
    } else if (x < 0 && y < 0) {
        printf("Third quadrant\n");
    } else if (x > 0 && y < 0) {
        printf("Fourth quadrant\n");
    } else {
        printf("On the axis\n");
    }

    return 0;
}
```

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { .\tempCodeRunnerFile }
Enter the coordinates (x, y): 5 6
First quadrant
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

36. Print the EVEN numbers between 1 to 100 using loop

```
#include <stdio.h>
```

```
int main() {
    for (int i = 2; i <= 100; i += 2) {
        printf("%d ", i);
    }
    printf("\n");

    return 0;
}
```

A screenshot of a code editor (VS Code) showing a C program named `problem1.c`. The code prints even numbers from 2 to 100. The terminal below shows the execution of the program and its output.

```
#include <stdio.h>
int main() {
    for(int i = 2; i <= 100; i += 2) {
        printf("%d ", i);
    }
    printf("\n");
    return 0;
}
```

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88 90 92 94 96
98 100
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

37. Print the numbers between 100 to 200 which are completely divisible by 3 and 5.

```
#include <stdio.h>
```

```
int main() {
    for (int i = 100; i <= 200; ++i) {
        if (i % 3 == 0 && i % 5 == 0) {
            printf("%d ", i);
        }
    }
    printf("\n");

    return 0;
}
```

```
File Edit Selection View Go Run Terminal Help ← → ⌘ A java practise
File Edit Selection View Go Run Terminal Help ← → ⌘ A java practise
J Calculation.java J cal1.java J Mycalculation.java J Vehicle.java J problem2.java JS test.js ⌘ problem1.c X J Car.java J Student.java
oop > Capston > C problem1.c ...
1 #include <stdio.h>
2
3 int main() {
4     for (int i = 100; i <= 200; ++i) {
5         if (i % 3 == 0 && i % 5 == 0) {
6             printf("%d ", i);
7         }
8     }
9     printf("\n");
10
11    return 0;
12 }
13

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Code + ⊞ ☁ … ^ ×
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { .\tempCodeRunnerFile }
105 120 135 150 165 180 195
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

The screenshot shows a Windows desktop environment with a taskbar at the bottom. The taskbar includes icons for File Explorer, Task View, Start, Search, Taskbar settings, and system notifications. The system tray shows the date and time as 11:39 PM 11/15/2023.

38. Write a program to print the following output using loop. ***** ***** *** *

```
#include <stdio.h>
```

```
int main() {
    for (int i = 5; i >= 1; --i) {
        for (int j = 1; j <= i; ++j) {
            printf("*");
        }
        printf("\n");
    }

    return 0;
}
```

A screenshot of the Visual Studio Code (VS Code) interface. The top bar shows the menu: File, Edit, Selection, View, Go, Run, Terminal, Help. The title bar says "A java practise". The left sidebar shows a file tree with files like Calculation.java, cal1.java, Mycalculation.java, Vehicle.java, problem2.java, test.js, test.html, problem1.c (which is the active tab), Car.java, and Student.java. The main editor area contains the following C code:

```
1 #include <stdio.h>
2
3 int main() {
4     for (int i = 5; i >= 1; --i) {
5         for (int j = 1; j <= i; ++j) {
6             printf("*");
7         }
8         printf("\n");
9     }
10
11     return 0;
12 }
```

The terminal below shows the command line output:

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
*****
***
```

39. Take an integer as input and print it's multiplication table up to 10. If user gives 5, your output should look like the following example
5 * 1 = 5 5 * 2 = 10 5 * 10 = 50

```
#include <stdio.h>
```

```
int main() {
    int number;

    printf("Enter an integer: ");
    scanf("%d", &number);

    for (int i = 1; i <= 10; ++i) {
        printf("%d * %d = %d\n", number, i, number * i);
    }

    return 0;
}
```

The screenshot shows a terminal window with the following text:

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { .\tempCodeRunnerFile }
Enter an integer: 5
5 * 1 = 5
5 * 2 = 10
5 * 3 = 15
5 * 4 = 20
5 * 5 = 25
5 * 6 = 30
5 * 7 = 35
5 * 8 = 40
5 * 9 = 45
5 * 10 = 50
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

40. Write a program which will print the summation of the given series $101 + 99 + 97 + \dots + 3 + 1 = ?$

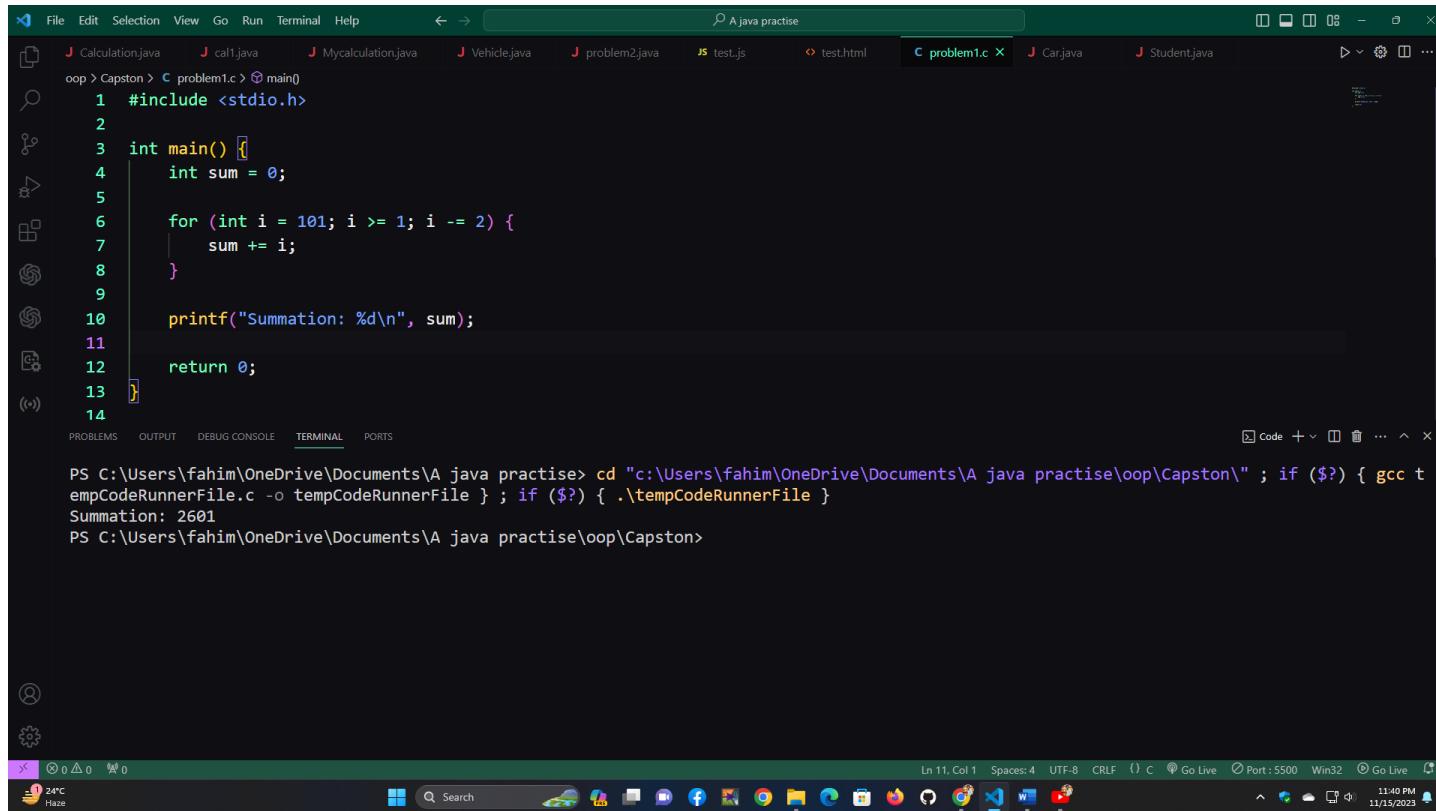
```
#include <stdio.h>
```

```
int main() {
    int sum = 0;

    for (int i = 101; i >= 1; i -= 2) {
        sum += i;
    }

    printf("Summation: %d\n", sum);

    return 0;
}
```



```
1 #include <stdio.h>
2
3 int main() {
4     int sum = 0;
5
6     for (int i = 101; i >= 1; i -= 2) {
7         sum += i;
8     }
9
10    printf("Summation: %d\n", sum);
11
12    return 0;
13}
14
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { ./tempCodeRunnerFile }
Summation: 2601
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

41. Write a program to print the following output using loop- * Blank Line *** Blank

Line *** Blank Line ***

```
#include <stdio.h>
```

```
int main() {
    for (int i = 1; i <= 5; ++i) {
        for (int j = 1; j <= i * 2 - 1; ++j) {
            printf("*");
        }
        printf("\n");
        printf("Blank Line\n");
    }

    return 0;
}
```

```
File Edit Selection View Go Run Terminal Help ← → ⌂ A java practise
Calculation.java cal1.java Mycalculation.java Vehicle.java problem2.java test.js test.html problem1.c Car.java Student.java
oop > Capston > C problem1.c > main()
1 #include <stdio.h>
2
3 int main() {
4     for (int i = 1; i <= 5; ++i) {
5         for (int j = 1; j <= i * 2 - 1; ++j) {
6             printf("*");
7         }
8         printf("\n");
9         printf("Blank Line\n");
10    }
11
12    return 0;
13 }
14

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { .\tempCodeRunnerFile }
*
Blank Line
 ***
Blank Line
 ****
Blank Line
 *****
Blank Line
 ******
@ Blank Line
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>

24°C Haze
```

42. Write a program to print the following output using loop
1 2 3 4 5 1 2 3 4 1 2 3 1 2 1
#include <stdio.h>

```
int main() {
    for (int i = 5; i >= 1; --i) {
        for (int j = 1; j <= i; ++j) {
            printf("%d ", j);
        }
        printf("\n");
    }

    return 0;
}
```

A screenshot of a code editor (Visual Studio Code) showing a C program named 'problem1.c'. The code prints a right-angled triangle pattern of numbers. The terminal below shows the output of the program.

```
#include <stdio.h>
int main() {
    for (int i = 5; i >= 1; --i) {
        for (int j = 1; j <= i; ++j) {
            printf("%d ", j);
        }
        printf("\n");
    }
    return 0;
}
```

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
1 2 3 4 5
1 2 3 4
1 2 3
1 2
1
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

43. Write a program to display "A" to "Z" using loop.

```
#include <stdio.h>
```

```
int main() {
    for (char ch = 'A'; ch <= 'Z'; ++ch) {
        printf("%c ", ch);
    }
    printf("\n");

    return 0;
}
```

The screenshot shows a Visual Studio Code (VS Code) interface. The left sidebar contains icons for various file types: Java (.java), C/C++ (.c/.h), JavaScript (.js), HTML (.html), and others. The main editor area displays a C program named 'problem1.c' with the following code:

```
1 #include <stdio.h>
2
3 int main() {
4     for(char ch = 'A'; ch <= 'Z'; ++ch) {
5         printf("%c ", ch);
6     }
7     printf("\n");
8
9     return 0;
10}
11
```

Below the editor, the terminal window shows the command-line output of running the program:

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

44. Print the summation of squares of all numbers from 5 to 25. $25 + 36 + 49 + 64 \dots + 576 + 625 = ?$

```
#include <stdio.h>
```

```
int main() {
    int sum = 0;

    for (int i = 5; i <= 25; ++i) {
        sum += i * i;
    }

    printf("Summation: %d\n", sum);

    return 0;
}
```

The screenshot shows a Microsoft Visual Studio Code (VS Code) interface. The left pane displays a C file named 'problem1.c' with the following code:

```
1 #include <stdio.h>
2
3 int main() {
4     int sum = 0;
5
6     for (int i = 5; i <= 25; ++i) {
7         sum += i * i;
8     }
9
10    printf("Summation: %d\n", sum);
11
12    return 0;
13 }
```

The right pane shows the terminal output:

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { .\tempCodeRunnerFile }
Summation: 5495
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

45. Write a program which will take an integer N from user and print all the numbers between N to –

```
#include <stdio.h>
```

```
int main() {
    int N;

    printf("Enter an integer N: ");
    scanf("%d", &N);
```

```
    while (N != -1) {
        printf("%d\n", N);
        printf("Enter an integer N: ");
        scanf("%d", &N);
```

```
}
```

```
    return 0;
```

```
}
```

A screenshot of the Visual Studio Code (VS Code) interface. The top menu bar includes File, Edit, Selection, View, Go, Run, Terminal, Help, and a search bar. The title bar shows the workspace name "A java practise". The left sidebar lists files: Calculation.java, cal1.java, Mycalculation.java, Vehicle.java, problem2.java, test.js, test.html, problem1.c (which is the active file), Car.java, and Student.java. The main editor area contains the following C code:

```
#include <stdio.h>
int main() {
    int N;
    printf("Enter an integer N: ");
    scanf("%d", &N);
    while (N != -1) {
        printf("%d\n", N);
        printf("Enter an integer N: ");
        scanf("%d", &N);
    }
}
```

The terminal below the editor shows the output of running the program:

```
Enter an integer N: 2
2
Enter an integer N: 3
3
Enter an integer N: 1
1
Enter an integer N: 4
4
Enter an integer N: 1
1
Enter an integer N: 1
1
Enter an integer N: -1
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

The status bar at the bottom displays various settings like Ln 5, Col 1, Spaces: 4, UTF-8, CRLF, Go Live, Port: 5500, Win32, and Go Live.

32. Stop your program when user will give N= -1 as input.

```
#include <stdio.h>
```

```
int main() {
    int N, first = 0, second = 1, next;

    printf("Enter an integer N: ");
    scanf("%d", &N);

    printf("Fibonacci series up to %d: ", N);
    printf("%d %d ", first, second);

    for (int i = 2; i < N; ++i) {
        next = first + second;
        printf("%d ", next);
        first = second;
        second = next;
    }

    printf("\n");
```

```
    return 0;  
}
```

The screenshot shows a terminal window titled "A java practise". The command run is "cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston\" ; if (\$?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (\$?) { .\tempCodeRunnerFile }". The output is "Enter an integer N: 2" followed by "Fibonacci series up to 2: 0 1". The terminal window is part of a larger interface with a code editor at the top and a taskbar at the bottom.

```
File Edit Selection View Go Run Terminal Help ← → A java practise
J Calculation.java J cal1.java J Mycalculation.java J Vehicle.java J problem2.java JS test.js O test.html C problem1.c X J Car.java J Student.java
D E F G H I J K L M N O P Q R S T U V W X Y Z
Calculation.java problem1.c
oop > Capston > C problem1.c > main()
1 #include <stdio.h>
2
3 int main() {
4     int N, first = 0, second = 1, next;
5
6     printf("Enter an integer N: ");
7     scanf("%d", &N);
8
9     printf("Fibonacci series up to %d: ", N);
10    printf("%d %d ", first, second);
11
12    for (int i = 2; i < N; ++i) {
13        next = first + second;
14        printf("%d ", next);
}
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston\" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
Enter an integer N: 2
Fibonacci series up to 2: 0 1
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

46. Write a program which will take an integer N as input from user and print Fibonacci series up to N. If user gives input N = 15, you should print 0 1 1 2 3 5 8 13

```
#include <stdio.h>
```

```
int main() {  
    int N, first = 0, second = 1, next;  
  
    printf("Enter an integer N: ");  
    scanf("%d", &N);  
  
    printf("Fibonacci series up to %d: ", N);  
    printf("%d %d ", first, second);  
  
    for (int i = 2; i < N; ++i) {  
        next = first + second;  
        printf("%d ", next);  
        first = second;
```

```

        second = next;
    }

printf("\n");

return 0;
}

```

The screenshot shows a code editor interface with a dark theme. The top menu bar includes File, Edit, Selection, View, Go, Run, Terminal, and Help. The title bar says "A java practise". The left sidebar has icons for Calculation.java, cal1.java, Mycalculation.java, Vehicle.java, problem2.java, test.js, test.html, problem1.c (which is the active tab), Car.java, and Student.java. The main code area contains a C program:

```

1 #include <stdio.h>
2
3 int main() {
4     int N, first = 0, second = 1, next;
5
6     printf("Enter an integer N: ");
7     scanf("%d", &N);
8
9     printf("Fibonacci series up to %d: ", N);
10    printf("%d %d ", first, second);
11
12    for (int i = 2; i < N; ++i) {
13        next = first + second;
14        printf("%d ", next);
}

```

Below the code are tabs for PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL, and PORTS. The TERMINAL tab shows command-line output:

```

PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston\" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
Enter an integer N: 9
Fibonacci series up to 9: 0 1 1 2 3 5 8 13 21
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>

```

The bottom status bar shows system information like battery level (24%), temperature (24°C), and date/time (11/15/2023).

47. Write a program to print the following output in the given format using loop

1 1 12 21 123

321 1234 4321 12345 54321

```
#include <stdio.h>
```

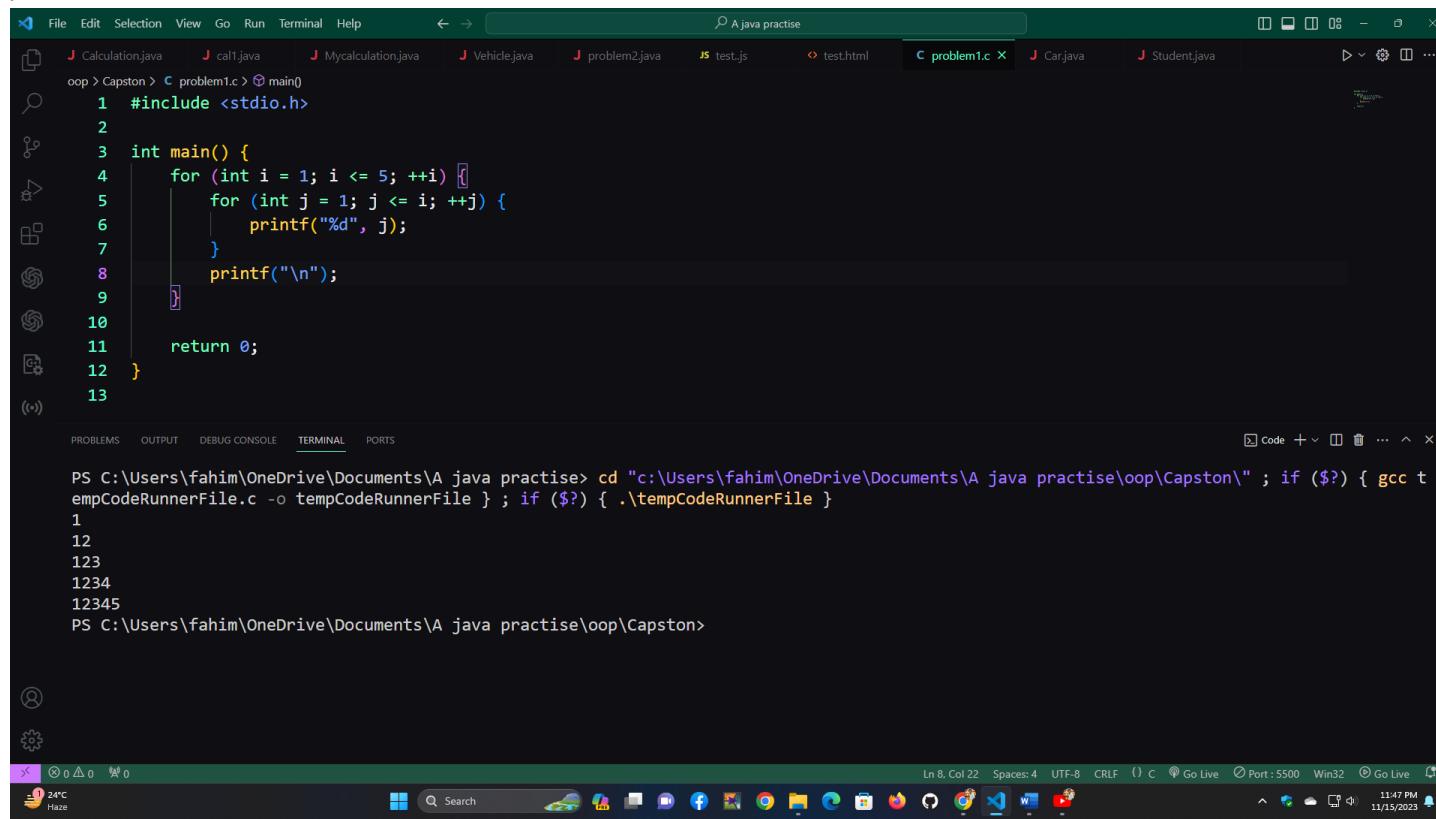
```

int main() {
    for (int i = 1; i <= 5; ++i) {
        for (int j = 1; j <= i; ++j) {
            printf("%d", j);
        }
        printf("\n");
    }
}

```

```
return 0;
```

```
}
```



```
#include <stdio.h>
int main() {
    for (int i = 1; i <= 5; ++i) {
        for (int j = 1; j <= i; ++j) {
            printf("%d", j);
        }
        printf("\n");
    }
    return 0;
}
```

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { ./tempCodeRunnerFile }
1
12
123
1234
12345
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

48. Find summation and average of all the numbers which are completely divisible by 3, 5 and 12 between 10 – 500. [Like 60 is divisible by all of those]

```
#include <stdio.h>
```

```
int main() {
    int sum = 0, count = 0;

    for (int i = 10; i <= 500; ++i) {
        if (i % 3 == 0 && i % 5 == 0 && i % 12 == 0) {
            sum += i;
            count++;
        }
    }

    printf("Summation: %d\n", sum);
    if (count > 0) {
        printf("Average: %.2f\n", (float)sum / count);
    } else {
        printf("No numbers found.\n");
    }
}
```

```
}
```

```
return 0;
```

```
}
```

The screenshot shows a code editor interface with a terminal window below it. The code editor has tabs for various files like Calculation.java, cal1.java, Mycalculation.java, Vehicle.java, problem2.java, test.js, test.html, problem1.c, Car.java, and Student.java. The current file is problem1.c. The terminal window shows the following command-line session:

```
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston\" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { .\tempCodeRunnerFile }
Summation: 2160
Average: 270.00
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>
```

The terminal also displays system status icons at the bottom.

49. Write a program to produce the following output using loop

1 2 4 3 6 9 4 8 12 16 5 10 15 20
25 6 12 18 24 30 36

```
#include <stdio.h>
```

```
int main() {
    for (int i = 1; i <= 6; ++i) {
        for (int j = 1; j <= i; ++j) {
            printf("%d ", i * j);
        }
        printf("\n");
    }

    return 0;
}
```

```

File Edit Selection View Go Run Terminal Help ← → ⌂ A java practise
File Edit Selection View Go Run Terminal Help ← → ⌂ A java practise
Calculation.java cal1.java Mycalculation.java Vehicle.java problem2.java test.js test.html problem1.c Car.java Student.java
oop > Capston > C problem1.c > ...
1 #include <stdio.h>
2
3 int main() {
4     for (int i = 1; i <= 6; ++i) {
5         for (int j = 1; j <= i; ++j) {
6             printf("%d ", i * j);
7         }
8         printf("\n");
9     }
10
11     return 0;
12 }
13

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Code + ⊞ ⊞ ⌂ ... ^ ×
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if (?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if (?) { .\tempCodeRunnerFile }
1
2 4
3 6 9
4 8 12 16
5 10 15 20 25
6 12 18 24 30 36
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>

```

50. Write a program which will display all the prime numbers between 0 to N (N will be given by the user). If user gives N = 20, your code will print the following output 2 3 5 7 11 13 17 19

```
#include <stdio.h>

int isPrime(int num) {
    if (num < 2) {
        return 0; // not prime
    }

    for (int i = 2; i * i <= num; ++i) {
        if (num % i == 0) {
            return 0; // not prime
        }
    }

    return 1; // prime
}

int main() {
    int N;

    printf("Enter an integer N: ");
}
```

```

scanf("%d", &N);

printf("Prime numbers between 0 and %d: ", N);
for (int i = 2; i <= N; ++i) {
    if (isPrime(i)) {
        printf("%d ", i);
    }
}
printf("\n");

return 0;
}

```

```

File Edit Selection View Go Run Terminal Help ← → A java practise problem1.c x Car.java Student.java
Calculation.java call1.java Mycalculation.java Vehicle.java problem2.java test.js test.html
5 ..... return 0; //not prime
6 ..... }
7
8 for (int i = 2; i * i <= num; ++i) {
9 ..... if (num % i == 0) {
10 ..... ..... return 0; //not prime
11 ..... }
12 ..... }
13
14 ..... return 1; //prime
15 }
16
17 int main(){
..... }

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\fahim\OneDrive\Documents\A java practise> cd "c:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { ./tempCodeRunnerFile }
Enter an integer N: 6
Prime numbers between 0 and 6: 2 3 5
PS C:\Users\fahim\OneDrive\Documents\A java practise\oop\Capston>

```

The screenshot shows a code editor interface with a dark theme. The top menu bar includes File, Edit, Selection, View, Go, Run, Terminal, and Help. The title bar says 'A java practise'. The tabs at the top show various files: Calculation.java, call1.java, Mycalculation.java, Vehicle.java, problem2.java, test.js, test.html, problem1.c (which is the active tab), Car.java, and Student.java. The code area contains a C program that prompts for an integer N, then prints all prime numbers between 0 and N. The code uses a simple algorithm with nested loops and conditional statements. Below the code editor is a terminal window showing the execution of the program. The user enters '6' as input, and the terminal outputs 'Prime numbers between 0 and 6: 2 3 5'. The bottom of the screen shows the Windows taskbar with various pinned icons.