



Submission

Practical 03 to 05

Module code

CS102.3

Module name

Programming with C language

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PRACTICAL 03

01)

```
include <stdio.h>

#include <stdlib.h>

int main()
{
    int no1,no2,maximum;
    printf("enter two numbers: \n");
    scanf("%d%d",&no1,&no2);

    if(no1>no2)
        maximum=no1;
    else
        maximum=no2;
    printf("The highest number is %d \n",maximum);

    return 0;
}
```

The screenshot shows the Code::Blocks IDE interface. The main window displays the code for 'main.c' in the 'mainc' file. The code is a simple program that prompts the user for two integers, determines the maximum, and prints it. The output window shows the terminal session where the program is run, displaying the input of two numbers (58 and 12), the output ('The highest number is 58'), and the completion message. The status bar at the bottom right shows the date and time as 6/29/2023 12:24 PM.

```
main.c [PRACTICAL3.1] - Code::Blocks 20.03
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins Doxygen Settings Help
Projects Files Fsy...
PRACTICAL3.1
Sources mainc
main.c
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 int main()
5 {
6     int no1,no2,max;
7     printf("enter two numbers: \n");
8     scanf("%d%d",&no1,&no2);
9
10    if(no1>no2)
11        max=no1;
12    else
13        max=no2;
14    printf("The highest number is %d \n",max);
15
16    return 0;
17
18 }

Logs & others
Code::Blocks Search results Build log Build messages CppCheck/Vera++
Run: Release in PRACTICAL3.1 (compiler: GNU GCC Compiler)
Checking for existence: C:\Users\3PCT\Desktop\C codes\PRACTICAL3.1\bin\Release\PRACTICAL3.1...
Set variable: PATH=C:\Program Files\CodeBlocks\MinGW\bin;C:\Program Files\CodeBlocks\MinGW\...
\System32\OpenSSH;C:\Program Files (x86)\NVIDIA Corporation\PhysX\Common;C:\Users\3PCT\Desktop\...
Executing: "C:\Program Files\CodeBlocks\cb_console_runner.exe" "C:\Users\3PCT\Desktop\C code
C:\Users\3PCT\Desktop\C codes\PRACTICAL3.1\main.c
85°F Mostly sunny 12:24 PM ENG 6/29/2023
```

```
02)
#include <stdio.h>
#include <stdlib.h>
```

```
int main()
{
    int no1,no2,no3,max,min;

    printf("enter the three integers");
    scanf("%d%d%d",&no1,&no2,&no3);

    max=no1;
    if(no2>max)
        max=no2;
    else if(no3>max)
        max=no3;

    min=no1;
    if(no2<min)
        min=no2;
    else if(no3<min)
        min=no3;

    printf("\n\nlargest value is %d\n",max);
    printf("\n\nsmallest value is %d",min);
```

```
return 0;
```

The screenshot shows the Code::Blocks IDE interface. The left pane displays the project structure under 'Management' with a single file 'main.c' selected. The code editor window shows the C code provided above. The terminal window on the right shows the execution of the program, where the user inputs 58, 12, and 12, and the output shows the highest number as 58 and the lowest number as 12. The status bar at the bottom indicates the system is at 85°F with mostly sunny weather, the time is 12:28 PM, and the date is 6/29/2023.

03)

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

int main()
{
    char ename[20];
    float bsalary,nsalary,incre;

    printf("enter employee name: ");
    scanf("%s",&ename);
    printf("enter basic salary: ");
    scanf("%f",&bsalary);
    if(bsalary>=10000)
        incre=bsalary*0.15;
    else if (bsalary>=5000)
        incre=bsalary*0.10;
    else
        incre=bsalary*incre;
    nsalary=bsalary+incre;
    printf("employee name is %s and new salary is %.2f \n",ename,nsalary);

    return 0;
}
```

The screenshot shows the Code::Blocks IDE interface. The left pane displays the project management window with a single file named 'main.c' selected. The code editor window shows the provided C program. The right pane contains two windows: one showing the terminal output of the program execution and another showing the logs and messages from the build process.

Code Editor Content:

```
#include <stdio.h>
#include <stdlib.h>
int main()
{
    int no1,no2,no3,max,min;
    printf("enter the three integers");
    scanf("%d%d%d",&no1,&no2,&no3);
    max=no1;
    if(no2>max)
        max=no2;
    else if(no3>max)
        max=no3;
    min=no1;
    if(no2<min)
        min=no2;
    else if(no3<min)
        min=no3;
    printf("\n\nhighest number is %d\n",max);
    printf("\n\nlowest number is %d\n",min);
    return 0;
}
```

Terminal Output:

```
C:\Users\3PCT\Desktop\C codes\practical3.2\main.c
C:\Users\3PCT\Desktop\C codes\practical3.2\bin\Release\practical3.2.exe
enter the three integers58
63
12
highest number is 63
lowest number is 12
Process returned 0 (0x0) execution time : 7.464 s
Press any key to continue.
```

Logs & others:

```
Code:Blocks - Build log - Build messages -
```

The logs show the compilation process and the execution command.

04)

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

int main()
{
    float rdiu,disme,ar,circ,q;
    printf("enter the radius of the circle: ");
    scanf("%f",&rdiu);
    q=3.14159;

    printf("\n\ndiameter is : %.2f \n",2*rdiu);
    printf("circumference is: %.2f \n",2*q*rdiu);
    printf("area: %.2f \n",q*(rdiu*rdiu));

    return 0;
}
```

The screenshot shows the Code::Blocks IDE interface. The top menu bar includes File, Edit, View, Search, Project, Build, Debug, Fortran, wxSmith, Tools, Tools+, Plugins, DoxygenBlocks, Settings, and Help. The main window displays a C source code file named 'main.c' with the following content:

```
#include <stdio.h>
#include <stdlib.h>
int main()
{
    float r,d,a,c,p;
    printf("enter the radius of the circle: ");
    scanf("%f",&r);
    p=3.14159;
    printf("\n\ndiameter: %.2f \n",2*r);
    printf("circumference is %.2f \n",2*p*r);
    printf("area: %.2f \n",p*(r*r));
    return 0;
}
```

The code uses standard input-output functions to prompt the user for the radius, calculate the diameter, circumference, and area, and then print them out. The output window shows the results for a radius of 21:

```
"C:\Users\3PCT\Desktop\C codes\practical3.4\bim\Release\practical3.4.exe"
enter the radius of the circle: 21

diameter: 42.00
circumference is 131.95
area:1385.44

Process returned 0 (0x0)   execution time : 2.631 s
Press any key to continue.
```

The bottom status bar shows the path 'C:\Users\3PCT\Desktop\C codes\practical3.4\main.c' and system information like temperature (85°F), battery level (mostly sunny), and date/time (6/29/2023).

05)

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

int main()
{
    int no1,no2,n;
    printf("enter two numbers: \n");
    scanf("%d%d",&no1,&no2);
    n=no1%no2;
    if (n==0)
        printf("%d is a multiple of %d",no1,no2);
    else
        printf("%d is not a multiple of %d",no1,no2);
    return 0;
}
```

The screenshot shows the Code::Blocks IDE interface. The top menu bar includes File, Edit, View, Search, Project, Build, Debug, Fortran, wxSmith, Tools, Tools+, Plugins, Doxygen, Settings, and Help. The toolbar has various icons for file operations like Open, Save, and Build. The main window has tabs for main.c, main.c, main.c, and main.c. The left sidebar shows a project named 'PRACTICAL3.5' with three source files: practical3.2, practical3.3, and practical3.5, all containing a 'main.c' file. The code editor displays the provided C program. A terminal window at the bottom shows the output of running the program: "enter two numbers: 25 69 25 is not a multiple of 69". The status bar at the bottom right shows the date and time as 6/29/2023 1:19 PM.

06)

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

int main()
{
    char characters[]={'A','B','C','a','b','c','0','1','2','$','*','+','/',' '};
    int no_characters= sizeof(characters)/sizeof(char);
    printf("character\tInteger Equivalent\n");

    for(int i=0;i<no_characters;i++)
    {
        printf("%c\t%d \n",characters[i],characters[i]);
    }
    return 0;
}
```

The screenshot shows the Code::Blocks IDE interface. The top menu bar includes File, Edit, View, Search, Project, Build, Debug, Fortran, wxSmith, Tools, Tools+, Plugins, Doxygen, Settings, and Help. The main window displays the code for 'main.c' in the practical3.6 project. The code defines a character array 'characters' and prints each character along with its ASCII value. The output window shows the results:

character	Integer Equivalent
A	65
B	66
C	67
a	97
b	98
c	99
0	48
1	49
2	50
\$	36
*	42
+	43
/	47
	32

The bottom status bar shows the path 'C:\Users\3PCT\Desktop\C codes\practical3.6\main.c', the system temperature '85°F', and the date/time '6/29/2023 15:1 PM'.

07)

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

int main()
{
    int y_service,m_sales;
    char city;
    float bsalary,aallowance,bonus,gremuneration;
    printf("enter the basic salary: ");
    scanf("%d",&bsalary);
    printf("enter the monthly sales: ");
    scanf("%d",&m_sales);
    printf("enter the city (C for colombo): ");
    scanf("%c",&city);

    if(y_service>5)
        aallowance=0.1*bsalary;
    else
        aallowance=0;

    if(city=="C"){
        aallowance+=2500;
    }

    if(m_sales<=25000)
        bonus=0.1*m_sales;
    else if(m_sales<=50000)
        bonus=0.12*m_sales;
    else
        bonus=0.15*m_sales;
    gremuneration=bsalary+aallowance+bonus;
    printf("gross monthly remuneration: %.2f \n",gremuneration);
    return 0;
}
```

The screenshot shows the Code::Blocks IDE interface with a C project named "practical3.7". The main.c file contains the following code:

```
int y_service,m_sales;
char City;
float bsalary,aallowance,bonus,gremuneration;
printf("enter the basic salary: ");
scanf("%d",&bsalary);
printf("enter the monthly sales: ");
scanf("%d",&m_sales);
printf("enter the city (C for colombo): ");
scanf("%c",&city);

if(y_service>5)
    aallowance=0.1*bsalary;
else
    aallowance=0;

if(city=='C')
    aallowance+=2500;

if(m_sales<25000)
    Bonus=0.1*m_sales;
else if(m_sales<50000)
    bonus=0.12*m_sales;
else
    bonus=0.15*m_sales;
gremuneration=bsalary+aallowance+bonus;
printf("gross monthly remuneration: %.2f \n",gremuneration);
return 0;
```

The output window shows the execution results:

```
enter the basic salary: 120000
enter the monthly sales: 150000
enter the city (C for colombo): gross monthly remuneration: 22500.00
```

The logs & others tab shows the build process:

```
Checking for existence: C:\Users\3PCT\Desktop\C codes\practical3.7\bin\Release\practical3.7.exe
See available compilers at: C:\Program Files (x86)\CodeBlocks\MinGW\bin\compiler_selector.exe
System32\OpenSSH\bin\Program File (x86)\NVIDIA Corporation\PhysX\CompressedC:\Users\3PCT\AppData\Local\Microsoft\WindowsApps\Executing: "C:\Program Files\CodeBlocks\cb_console_runner.exe" "C:\Users\3PCT\Desktop\C codes\practical3.7\bin\Release\practical3.7.exe" (in C:\Users\3PCT\Desktop\C codes\practical3.7.)
```

PRACTICAL 04

01)

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

int main()
{
    int num,answer;
    printf("enter the number: ");
    scanf("%d",&num);
    answer=num%2;
    if(answer==0)
        printf("\n this number is a even number\n",num);
    else
        printf("\n this number is an odd number\n",num);
    return 0;
}
```

The screenshot shows the Code::Blocks 20.03 IDE interface. The left pane displays the project structure under 'Management' with multiple projects like PRACTICALS.1 through PRACTICALS.6, and a new project named 'P4.1'. The central pane shows the source code for 'main.c' with syntax highlighting. The right pane shows the terminal window where the program is run, displaying the input 'enter the number: 52' and the output 'this number is a even number'. Below the terminal is the 'Logs & others' panel showing build logs. The taskbar at the bottom indicates the file path 'C:\User\3PC1\Desktop\C codes\P4.1\main.c' and system information like '85°F Mostly sunny'.

1.1)

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

int main()
{
    int num;
    printf("enter an integer: ");
    scanf("%d",&num);

    switch(num%2)
    {
        case 0:
            printf("%d is an even number \n",num);
            break;
        case 1:
            printf("%d is an odd number \n",num);
            break;
    }
    return 0;
}
```

The screenshot shows the Code::Blocks IDE interface. The top menu bar includes File, Edit, View, Search, Project, Build, Debug, Fortran, wxSmith, Tools, Tools+, Plugins, DoxygenBlocks, Settings, Help. The main window displays the code for 'main.c' in the center pane. The left pane shows the project structure under 'Management' with multiple projects like 'PRACTICAL3.1' through 'P4.1' and 'p4.1.1'. The bottom pane shows a terminal window with the program's output:

```
C:\Users\3PCT\Desktop\C codes\p4.1.1\main.c
enter an integer: 52
52 is an even number

Process returned 0 (0x0)   execution time : 1.635 s
Press any key to continue.
```

The taskbar at the bottom shows the Windows Start button, a search bar, and several pinned icons. The system tray indicates the date and time as 6/29/2023, 4:20 PM, with a battery level of 85% and mostly sunny weather.

02)

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

int main()
{
    int choose;
    float no1,no2;
    printf("menu driven calculator\n");
    printf("-----\n");
    printf("1.addition \n");
    printf("2.subtraction \n");
    printf("3.multiplication \n");
    printf("4.division \n");
    printf("enter your choose (1 to 4):");
    scanf("%d",&choose);
    printf("enter two numbers: ");
    scanf("%f%f",&no1,&no2);
    switch(choose){
        case 1: printf("%.2f+%.2f=% .2f \n",no1,no2,no1+no2);break;
        case 2: printf("%.2f-%.2f=% .2f \n",no1,no2,no1-no2);break;
        case 3: printf("%.2f*%.2f=% .2f \n",no1,no2,no1*no2);break;
        case 4: printf("%.2f/%.2f=% .2f \n",no1,no2,no1/no2);break;
    }
    return 0;
}
```

The screenshot shows the Code-Blocks 20.03 IDE interface. The main window displays the source code for 'main.c' in the 'practical4.2' project. The code implements a menu-driven calculator with four options: addition, subtraction, multiplication, and division. The user can enter two floating-point numbers and choose an operation. The output window shows the execution of the program, where it prints the menu, asks for input, and then performs the selected operation on the numbers 100.00 and 25.00.

```
C:\Users\3PCT\Desktop\C codes\practical4.2\bin\Release\practical4.exe
menu driven calculator
1.addition
2.subtraction
3.multiplication
4.division
enter your choose (1 to 4):4
enter two numbers: 100.00 25.00
100.00/25.00=4.00

process returned 0 (0x0)  execution time : 10.431 s
press any key to continue.
```

03)

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

int main()
{
    float q=3.14159;
    int rdui,cirference,vol,area,choose;

    printf("1.calculate circumference\n");
    printf("2.calculate area\n");
    printf("3.calculate volume\n");
    printf("enter your choose: ");
    scanf("%d",&choose);
    printf("enter the radius: ");
    scanf("%d",&rdui);

    switch(choose)
    {
        case 1:printf("circumference is: %d ",cirference=2*q*rdui);break;

        case 2:printf("area is: %d ",area=q*(rdui*rdui));break;

        case 3:printf("volume is: %d ",vol=1.33*q*(rdui*rdui*rdui));break;
    }
    return 0;
}
```

The screenshot shows the Code::Blocks IDE interface. The top menu bar includes File, Edit, View, Search, Project, Build, Debug, Fortran, wxSmith, Tools, Tools+, Plugins, DoxyBlocks, Settings, Help, and Release. The main window displays the code in a file named 'main.c' under the 'Sources' tab of the 'p4.3' project. The code is identical to the one above. To the right of the code editor is a terminal window showing the execution of the program. The terminal output is:

```
"C:\Users\3PCT\Desktop\C codes\p4.3\bin\Release\p4.3.exe"
1.calculate circumference
2.calculate area
3.calculate volume
enter your choose: 1
enter the radius: 125
circumference is: 785
Process returned 0 (0x0) execution time : 10.145 s
Press any key to continue.
```

At the bottom of the IDE, the status bar shows the path 'C:\Users\3PCT\Desktop\C codes\p4.3\main.c', the compiler 'GNU GCC Compiler', and the build status '----- Run: Release in p4.3 (compiler: GNU GCC Compiler) -----'. The taskbar at the bottom of the screen shows various icons for system functions like Start, Task View, File Explorer, and browser, along with the system clock showing '9:16 AM' and date '6/30/2023'.

04)

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

int main() {
    char ch;

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

    switch (ch) {
        case 'a':
        case 'e':
        case 'i':
        case 'o':
        case 'u':
        case 'A':
        case 'E':
        case 'I':
        case 'O':
        case 'U':
            printf("%c is a vowel.\n", ch);
            break;
        default:
            printf("%c is not a vowel.\n", ch);
            break;
    }
}

return 0;
}
```

The screenshot shows the Code::Blocks IDE interface. The top menu bar includes File, Edit, View, Search, Project, Build, Debug, Fortran, wxSmith, Tools, Tools+, Plugins, DocBlocks, Settings, Help. The main workspace shows a project named 'p4.4' with a single source file 'main.c'. The code editor displays the C program above. Below the editor is a terminal window showing the execution of the program. The terminal output is:

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

int main() {
    char ch;

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

    switch (ch) {
        case 'a':
        case 'e':
        case 'i':
        case 'o':
        case 'u':
        case 'A':
        case 'E':
        case 'I':
        case 'O':
        case 'U':
            printf("%c is a vowel.\n", ch);
            break;
        default:
            printf("%c is not a vowel.\n", ch);
            break;
    }
}

Process returned 0 (0x0)   execution time : 7.009 s
Press any key to continue.
```

The status bar at the bottom shows the path 'C:\Users\3PC\Desktop\C\codes\p4.4\main.c', the operating system 'Windows (CR-LF) WINDOWS-1252', the current line 'Line 29, Col 14, Row 519', and the date/time '8/29/2023 8:28 PM'.

05)

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

int main() {
    int month;

    printf("Enter the month number (1 to12): ");
    scanf("%d", &month);

    switch (month) {
        case 1:
            printf("January has 31 days.\n");break;
        case 2:
            printf("February has 28 days.\n");break;
        case 3:
            printf("March has 31 days.\n");break;
        case 4:
            printf("April has 30 days.\n");break;
        case 5:
            printf("May has 31 days.\n");break;
        case 6:
            printf("June has 30 days.\n");break;
        case 7:
            printf("July has 31 days.\n");break;
        case 8:
            printf("August has 31 days.\n");break;
        case 9:
            printf("September has 30 days.\n");break;
        case 10:
            printf("October has 31 days.\n");break;
        case 11:
            printf("November has 30 days.\n");break;
        case 12:
            printf("December has 31 days.\n");break;
    }

    return 0;
}
```

main.c [p4.5] - Code::Blocks 20.03

File Edit View Search Project Build Debug Fortran Tools Tools+ Plugins Doxygen Settings Help

Management main.c main.c main.c main.c

```
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 int main() {
5     int month;
6
7     printf("Enter the month number (1 to12): ");
8     scanf("%d", &month);
9
10    switch (month) {
11        case 1:
12            printf("January has 31 days.\n");break;
13        case 2:
14            printf("February has 28 days.\n");break;
15        case 3:
16            printf("March has 31 days.\n");break;
17        case 4:
18            printf("April has 30 days.\n");break;
19        case 5:
20            printf("May has 31 days.\n");break;
21        case 6:
22            printf("June has 30 days.\n");break;
23        case 7:
24            printf("July has 31 days.\n");break;
25        case 8:
26            printf("August has 31 days.\n");break;
27        case 9:
28            printf("September has 30 days.\n");break;
29        case 10:
30            printf("October has 31 days.\n");break;
31    }
32 }
```

C:\Users\3PCT\Desktop\C codes\p4.5\main.c

Logs & others

Code::Blocks Search results Build log Build messages

Run: Release in p4.5 (compiler: GNU GCC Compiler)

Compiling source file main.c

Set variable: PATH=C:\Program Files\CodeBlocks\MinGW\bin;C:\Program Files\CodeBlocks\MinGW\lib;c:\Program Files\NVIDIA Corporation\PhysX\Common;c:\System32;OpenSSH;C:\Program Files\CodeBlocks\MinGW\bin;C:\Program Files (x86)\NVIDIA Corporation\PhysX\Common;c:\

Executing: "C:\Program Files\CodeBlocks\cb_console_runner.exe" "C:\Users\3PC\

82°F Mostly cloudy 9:38 PM ENG 6/29/2023

Practical 5

01)Using a while loop

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

```
int main()
```

```
{
```

```
    int no=0;
```

```
    while (no<=100)
```

```
{
```

```
    printf("%d ",no);
```

```
    no++;
```

```
}
```

```
return 0;
```

```
}
```

The screenshot shows the Code::Blocks IDE interface. The code editor window displays the following C code:

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

int main()
{
    int no=0;

    while (no<=100)
    {
        printf("%d ",no);
        no++;
    }

    return 0;
}
```

The output window shows the execution results:

```
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
Process returned 0 (0x0)   execution time : 0.051 s
Press any key to continue.
```

The logs & others window shows the build process:

```
-- Run: Release in p5.1 (compiler: GN& OCC Compiler) --
Checking for extensions: C:\Users\3PCT\Desktop\C codes\p5.1\bin\Release\p5.1
set variable: PATH=C:\Program Files\CodeBlocks\MinGW\bin;C:\Program Files\System32\OpenSSH;C:\Program Files (x86)\NVIDIA Corporation\PhysX\Common;C:\Program Files\CodeBlocks\cb_console_runner.exe" "C:\Users\3PCT\Desktop\C codes\p5.1\main.c
```

5.1.1) using a do while loop

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

```
int main()
```

```
{
```

```
    int no=0;
```

```
    do {
```

```
        printf("%d ",no);
```

```
        no++;
```

```
    } while (no<= 100);
```

```
    return 0;
```

```
}
```

The screenshot shows the Code::Blocks 20.03 IDE interface. The main window displays the code for 'main.c' in the editor. The code implements a simple 'do while' loop that prints integers from 0 to 100. The output window shows the printed numbers from 0 to 100. The logs window at the bottom shows the build and run process details.

```
main.c [p5.1.1] - Code::Blocks 20.03
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins Doxygen Settings Help
Management Projects Files FSy
Projects Workspace
  practical42
    Sources main.c
  p4
    Sources main.c
  p5.1
    Sources main.c
  p5.1.1
    Sources main.c
main.c X main.c X Untitled X main.c X main.c X
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 int main()
5 {
6     int no=0;
7
8     do {
9         printf("%d ",no);
10        no++;
11    } while (no<= 100);
12
13
14
15
16
"C:\Users\3PCT\Desktop\C codes\p5.1\bin\Release\p5.1.exe"
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
Process returned 0 (0x0) execution time : 0.043 s
Press any key to continue.

Logs & others
Code::Blocks X Search results X Build log X Build messages X
----- Run: Release in p5.1.1 (compiler: GNU GCC Compiler) -----
Checking for existence: C:\Users\3PCT\Desktop\C codes\p5.1\bin\Release\p5.1.exe
Set variable: PATH=.;C:\Program Files\CodeBlocks\MinGW\bin;C:\Program Files\CodeBlocks\MinGW;C:\Windows\System32;C:\Windows;C:\Windows\System32\wbem;C:\Windows\System32\WindowsPowerShell\v1.0;C:\Windows\System32\OpenSSH;C:\Program Files (x86)\NVIDIA Corporation\PhysX\Common;C:\Users\3PCT\AppData\Local\Microsoft\WindowsApps
Executing: "C:\Program Files\CodeBlocks\ch_console_runner.exe" "C:\Users\3PCT\Desktop\p5.1.1\bin\Release\p5.1.1.exe" (in C:\Users\3PCT\Desktop\C codes\p5.1.1\)
C:\User\3PCT\Desktop\C codes\p5.1.1\main.c C/C++ Windows (CR+LF) WINDOWS-1252 Line 10, Col 11, Pos 122 Insert Read/Write default
83°F Partly sunny 9:3 AM 6/30/2023
```

5.1.2) using a for loop

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

int main()
{
    for (int no= 0; no<= 100; no++) {
        printf("%d ",no);
    }

    return 0;
}
```

The screenshot shows the Code::Blocks 20.03 IDE interface. The left pane displays the project management window with several projects listed under 'Workspace'. The main pane shows a code editor with the following C code:

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

int main()
{
    for (int no= 0; no<= 100; no++) {
        printf("%d ",no);
    }

    return 0;
}
```

To the right of the code editor is a terminal window showing the output of the program execution. The output lists all integers from 0 to 100, separated by spaces. Below the terminal window is a 'Logs & others' panel which contains build log information.

At the bottom of the screen, the Windows taskbar is visible, showing the system tray and system status indicators.

5.2)

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

int main()
{
    int marks[10],tot=0;
    float ave;

    printf("Enter 10 marks:\n");

    for (int i = 0; i < 10; i++) {
        printf("Enter mark %d: ", i+1);
        scanf("%d", &marks[i]);
        tot += marks[i];
    }

    ave=(float)tot/10;

    printf("\n Total marks: %d\n", tot);
    printf("Average marks: %.2f\n", ave);

    if (ave< 50) {
        printf("Fail\n");
    }
    else
    {
        printf("Pass\n");
    }

    return 0;
}
```

The screenshot shows the Code::Blocks IDE interface. The top menu bar includes File, Edit, View, Search, Project, Build, Debug, forums, weSmith, Tools, Tools+, Plugins, DocBlocks, Settings, and Help. The main window displays the source code for 'main.c'. Below the code editor is a terminal window showing the execution of the program. The terminal output is as follows:

```
1 "C:\User\JPCT\Desktop\Code\p5.2\bin\Release\p5.2.exe"
Enter 10 marks:
Enter mark 1: 65
Enter mark 2: 32
Enter mark 3: 36
Enter mark 4: 38
Enter mark 5: 59
Enter mark 6: 65
Enter mark 7: 12
Enter mark 8: 8
Enter mark 9: 15
Enter mark 10: 65
Total marks: 385
Average marks: 38.50
Fail

Process returned 0 (0x0) execution time : 15.738 s
Press any key to continue.
```

The bottom status bar shows system information: 83°F Partly sunny, 9:49 AM, ENG, 6/30/2023.

5.3)

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

int main()
{
    int x,y,fac=1;
    printf("enter X positive Integer:");
    scanf("%d",&x);
    if(x==0)
    {
        printf("\n0!=1\n");
    }
    else if (x>0)
    {
        y=x;
        while(y>=2)
        {
            fac=fac*y;
            y--;
        }
        printf("\n %d!=%d \n",x,fac);
    }
    else{
        printf("\n you have a negative integer \n");
    }
    return 0;
}
```

The screenshot shows the Code::Blocks IDE interface. On the left, the code editor displays the factorial program. On the right, a terminal window shows the execution of the program. The terminal output is:

```
"C:\Users\3PC\Desktop\C codes\p5.3\bin\Release\p5.3.exe"
enter X positive Integer:86
86!=1
Process returned 0 (0x0) execution time : 4.590 s
Press any key to continue.
```

The terminal window also shows the command used to run the program: "Run: Release in p5.3 (compiler: GNU GCC Compiler)".

5.4)

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

int main()
{
    int no,rem,sum=0;

    printf("Enter a number: ");
    scanf("%d",&no);

    while (no>0)
    {
        rem=no%10;
        sum+=rem;
        no=no/10;
    }

    printf("Sum of the digits: %d\n",sum);

    return 0;
}
```

The screenshot shows the Code::Blocks IDE interface. The top menu bar includes File, Edit, View, Search, Project, Build, Debug, Fortran, woSmith, Tools, Tools+, Plugins, Doxygen, Settings, and Help. The workspace on the left lists several projects under 'Workspace', including practical42, p4.3, p5.1, p5.1.1, p5.1.2, p5.2, and p5.4, each with a main.c file. The main.c file for p5.4 is open in the center editor window, displaying the provided C code. To the right of the editor is a terminal window showing the execution of the program: "Enter a number: 12", "Sum of the digits: 3", and "Process returned 0 (0x0) execution time : 3.655 s". At the bottom, the system tray shows the date and time as 6/30/2023, 9:58 AM.

5.5)

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

int main()
{
    int number, reversedNumber = 0, remainder;

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

    do {
        remainder = number % 10;
        reversedNumber = reversedNumber * 10 + remainder;
        number /= 10;
    } while (number != 0);

    printf("Reversed number: %d\n", reversedNumber);

    return 0;
}
```

The screenshot shows the Code::Blocks IDE interface. The left pane displays a project tree with multiple source files (main.c) under various projects like p5.3 through p5.5. The right pane shows the code editor with the provided C code. Below the editor is a terminal window showing the execution of the program. The terminal output is:

```
"C:\Users\3PCT\Desktop\C codes\5.5\b1n\Release\5.5.exe"
Enter a number: 5
Reversed number: 5

Process returned 0 (0x0)   execution time : 2.656 s
Press any key to continue.
```

The bottom status bar shows system information: 88°F Mostly sunny, 8:49 PM, 6/30/2023.

5.6)

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

int main()
{
    int base, expo, resu= 1;

    printf("Enter the base: ");
    scanf("%d", &base);

    printf("Enter the exponent: ");
    scanf("%d", &expo);

    for (int i= 0; i< expo; i++)
    {
        resu*= base;
    }

    printf("%d raised to the power of %d is: %d\n", base, expo, resu);

    return 0;
}
```

The screenshot shows the Code::Blocks IDE interface with the following details:

- Project Structure:** The left pane shows a project named "practical42" containing multiple source files (main.c) for various problems (p4.3, p5.1, p5.1.1, p5.1.2, p5.2, p5.4, p5.5, p5.6).
- Code Editor:** The main editor window displays the C code for problem 5.6.
- Terminal Output:** A terminal window at the bottom right shows the execution of the program:

```
C:\Users\3PCT\Desktop\C codes\p5.6\bin\Release\p5.6.exe
Enter the base: 12
Enter the exponent: 2
12 raised to the power of 2 is: 144
Process returned 0 (0x0) execution time : 2.888 s
Press any key to continue.
```
- Logs & others:** A log window at the bottom left shows the build process:

```
-- Run: Release in p5.6 (compiler: GNU GCC Compiler) --
Checking for existence: C:\Users\3PCT\Desktop\C codes\p5.6\bin\Release\p5.6.exe
Set variable: PATH=C:\Program Files\CodeBlocks\MinGW\bin;C:\Program Files\CodeBlocks\MinGW\lib;C:\Windows\System32;OpenSSH;C:\Program Files (x86)\NVIDIA Corporation\PhysX\Common;C:\Users\3PCT\AppData\Local\Temp\ch_0\runner;C:\Program Files\CodeBlocks\ch_console_runner.exe" "C:\Users\3PCT\Desktop\C codes\p5.6\bin\Release\p5.6.exe"
```

5.7)

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

int main()
{
    int no=10;
    int firstno= 0, secondno= 1, next,i;

    printf("First %d numbers of the Fibonacci sequence:\n",no);
    printf("%d %d ",&firstno,&secondno);

    for (i=3; i<= no; ++i)
    {
        next= firstno+secondno;
        printf("%d ",next);
        firstno=secondno;
        secondno=next;
    }

    return 0;
}
```

The screenshot shows the Code::Blocks 20.03 IDE interface. The top menu bar includes File, Edit, View, Search, Project, Build, Debug, Fortran, wxSmith, Tools, Tools+, Plugins, Doxygen, Settings, Help, and Release. The main window displays the code for 'main.c' in the center pane. The left pane shows the project tree under 'Management' with multiple projects like 'practical4.2', 'p4.3', 'p5.1', 'p5.1.1', 'p5.1.2', 'p5.2', 'p5.4', 'p5.5', 'p5.6', and 'p5.7'. The right pane shows the output of the program execution, which prints the first 10 numbers of the Fibonacci sequence: 0 1 1 2 3 5 8 13 21 34. The bottom status bar shows the path 'C:\Users\3PCT\Desktop\C codes\p5.7\main.c', the system temperature '84°F Partly sunny', and the date/time '10:20 AM 6/30/2023'.

5.8)

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

int main()
{
    int number;

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

    if (isArmstrong(number)) {
        printf("%d is an Armstrong number.\n", number);
    } else {
        printf("%d is not an Armstrong number.\n", number);
    }

    return 0;
}

int isArmstrong(int number) {
    int originalNumber, remainder, result = 0, n = 0;

    originalNumber = number;

    // Count the number of digits
    while (originalNumber != 0) {

        originalNumber /= 10;
        ++n;
    }

    originalNumber = number;

    // Calculate the result
    while (originalNumber != 0) {
        remainder = originalNumber % 10;
        result += pow(remainder, n);
        originalNumber /= 10;
    }

    // Check if the number is an Armstrong number
    if (result == number) {
        return 1;
    }
}
```

```
} else {
    return 0;
}
```

The screenshot shows the Code::Blocks 20.03 IDE interface. The main window displays a C source code file named `main.c` with the following content:

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

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

    if (isArmstrong(number)) {
        printf("%d is an Armstrong number.\n", number);
    } else {
        printf("%d is not an Armstrong number.\n", number);
    }

    return 0;
}

int isArmstrong(int number) {
    int originalNumber, remainder, result = 0, n = 0;
    originalNumber = number;

    // Count the number of digits
    while (originalNumber != 0) {
        originalNumber /= 10;
        ++n;
    }

    originalNumber = number;

    // Calculate the sum of digits raised to the power of n
    while (originalNumber != 0) {
        remainder = originalNumber % 10;
        result += pow(remainder, n);
        originalNumber /= 10;
    }

    return result == number;
}
```

The code defines a function `isArmstrong` that checks if a given number is an Armstrong number by calculating the sum of its digits raised to the power of the number of digits. The main function prompts the user for a number, calls `isArmstrong`, and prints the result.

The terminal window shows the output of running the program with the input `6`:

```
Enter a number: 6
6 is an Armstrong number.

Process returned 0 (0x0) execution time : 6.608 s
Press any key to continue.
```

The status bar at the bottom shows the current directory as `C:\Users\3PCT\Desktop\C codes\p5.21\bin\Release` and the build configuration as `p5.21`.

5.9)

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

int main()
{
    char letter;
    printf("ASCII values for letters A-Z:\n");
    for (letter= 'A';letter <= 'Z'; letter++)
    {
        printf("%c: %d\n", letter, letter);
    }

    return 0;
}
```

The screenshot shows the Code::Blocks IDE interface. The left pane displays a project tree with multiple source files (main.c) under various projects like practical4.2, p4.3, p5.1, p5.2, p5.4, p5.5, p5.6, p5.7, and p5.9. The right pane shows the code editor with the provided C program. Below the editor is a terminal window titled "C:\Users\3PCT\Desktop\C codes\p5.9\bin\Release\p5.9.exe". The terminal output lists the ASCII values for letters A through Z, ranging from 65 to 90. At the bottom, the taskbar shows the system status (84°F, Partly sunny, 10:27 AM, 6/30/2023).

```
A: 65
B: 66
C: 67
D: 68
E: 69
F: 70
G: 71
H: 72
I: 73
J: 74
K: 75
L: 76
M: 77
N: 78
O: 79
P: 80
Q: 81
R: 82
S: 83
T: 84
U: 85
V: 86
W: 87
X: 88
Y: 89
Z: 90
```

5.10)

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

```
int main()
{
    printf("*\n");
    printf("**\n");
    printf("/**\n");
    printf("****\n");
    printf("*****\n");
}
```

The screenshot shows the Code::Blocks 20.03 IDE interface. The project tree on the left lists several projects, with 'p5.10' selected. The code editor window displays the following C code:

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

int main()
{
    printf("*\n");
    printf("**\n");
    printf("/**\n");
    printf("****\n");
    printf("*****\n");
}
```

The output window shows the terminal output of the compiled program:

```
***
```

Process returned 0 (0x0) execution time : 0.065 s
Press any key to continue.

The status bar at the bottom provides system information: C:\Users\3PCT\Desktop\C codes\p5.10\main.c, C/C++, Windows (CR+LF), WINDOWS-1252, Line 10, Col 24, Pos 171, Insert, Read/Write, default, 84°F Partly sunny, ENG, 6/30/2023.

5.11)

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

int main()
{
    int a,b=1,c=0,d=-1;
    printf("enter a number:");
    scanf("%d",&a);
    if(a==0){
        printf("0 is neither a prime number nor a composite number");
    } else if (a>0){
        while(b<=a){
            if(a%b==0){
                c++;
            }
            b++;
        }
        if(a%1==0&&a%a==0&&c==2){
            printf("%d is a prime number",a);
        } else {
            printf("%d is a composite number",a);
        }
        return 0;
    }
}
```

The screenshot shows the Code::Blocks IDE interface. The main window displays the code for 'main.c'. The code itself is as follows:

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

int main()
{
    int a,b=1,c=0,d=-1;
    printf("enter a number:");
    scanf("%d",&a);
    if(a==0){
        printf("0 is neither a prime number nor a composite number");
    } else if (a>0){
        while(b<=a){
            if(a%b==0){
                c++;
            }
            b++;
        }
        if(a%1==0&&a%a==0&&c==2){
            printf("%d is a prime number",a);
        } else {
            printf("%d is a composite number",a);
        }
        return 0;
    }
}
```

To the right of the code editor, a terminal window shows the execution of the program. The user enters '7' and the output is:

```
C:\Users\3PCT\Desktop\C codes\p5.11\bin\Release>p5.11.exe
enter a number:
7 is a prime number
Process returned 0 (0x0) execution time : 1.984 s
Press any key to continue.
```

At the bottom of the screen, the Windows taskbar is visible with the system tray showing the date and time.

5.12)

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

int main()
{
    int a,b,c=-1;
    printf("enter a number:");
    scanf("%d",&a);
    if(a>0){
        printf("factors of %d \n",a);
        while(b<=a){if (a%b==0){printf("%d\n",b);}b++;}
        while(c>=a){if(a%c==0){printf("%d \n",c);}c--;}
    }
    else if(a<0){
        printf("factors of %d \n",a);
        while(b<=-a){if(a%b==0){printf("%d\n",b);}b++;}
        while(c<=a){if(a%c==0){printf("%d\n",c);}c--;}
    }
    else{printf("o has no factors\n");}
}
```

The screenshot shows the Code::Blocks IDE interface. The top window displays the C source code for problem 5.12. The bottom window shows the terminal output of the program's execution.

Code::Blocks IDE Screenshot:

- Top Window (Code Editor):** Shows the C code for problem 5.12. The code uses nested loops to find factors of a given number (a). It handles positive, negative, and zero cases. The code is color-coded for readability.
- Bottom Window (Terminal):** Shows the execution of the program. When run with input 56, it prints "factors of 56".

```
Process returned -107374176 (0xc0000094) execution time : 2.964 s
Press any key to continue:
```

```
5.13)
#include <stdio.h>
#include <stdlib.h>

int main()
{
    int a=0,b=-1,c=0;
    while(a<b || a>b){
        printf("enter a number:");
        scanf("%d",&a);
        c=c+a;
    }
    printf("the sum of the all user input is %d",c+1);
}
```

5.14)

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

int main()
{
    int i,arr[10];
    for(i=0;i<10;i++)
    {
        printf("enter a value to the element%d :",i+1);
        scanf("%d",&arr[i]);
    }
    printf("\n");
    printf("the array is:");
    for(i=0;i<10;i++)
    {
        printf("%d",arr[i]);
    }
}
```

The screenshot shows the Code::Blocks 20.03 IDE interface. The code editor window displays the C program for reading an array of 10 integers and printing it. The terminal window shows the execution of the program, prompting for input and displaying the resulting array. The logs window shows the build process and command-line arguments.

Code Editor Content:

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

int main()
{
    int i,arr[10];
    for(i=0;i<10;i++)
    {
        printf("enter a value to the element%d :",i+1);
        scanf("%d",&arr[i]);
    }
    printf("\n");
    printf("the array is:");
    for(i=0;i<10;i++)
    {
        printf("%d",arr[i]);
    }
}
```

Terminal Output:

```
"C:\Users\3PCT\Desktop\C codes\p5.14\bin\Release\p5.14.exe"
enter a value to the element1 :45
enter a value to the element2 :63
enter a value to the element3 :2
enter a value to the element4 :385
enter a value to the element5 :96
enter a value to the element6 :45
enter a value to the element7 :55
enter a value to the element8 :478
enter a value to the element9 :45
enter a value to the element10 :45

the array is:4563123859645554784545
Process returned 0 (0x0)   execution time : 10.633 s
Press any key to continue.
```

Logs & others:

```
--> File: Before in p5.14 (Compiler: GNU GCC Compiler)
Building for architecture: C:\Users\3PCT\Desktop\C codes\p5.14\main.c
Set variable: PATH=C:\Program Files\CodeBlocks\MinGW\bin;C:\Windows\system32;C:\Windows;C:\Windows\System32;C:\Windows\SYSTEM32;C:\Program Files (x86)\NVIDIA Corporation\PhysX\Common;C:\Program Files\CodeBlocks\ch_console_runner.exe
Executing: "C:\Program Files\CodeBlocks\ch_console_runner.exe" "
```

5.15)

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

int main()
{
    int i,arr[10],ec=0;
    for(i=0;i<10;i++)
    {
        printf("enter a value to the element %d:",i+1);
        scanf("%d",&arr[i]);

    }
    printf("\n");
    printf("the array is:");
    for(i=0;i<10;i++)
    {
        printf("%d",arr[i]);
        if(arr[i]%2==0){ec++;}
    }
    printf("\n there are %d even number in the array\n",ec);
    return 0;
}
```

The screenshot shows the Code::Blocks IDE interface. The left pane displays a project tree with multiple projects named p5.3 through p5.15. The main workspace shows the source code for p5.15. The right pane shows the terminal window with the program's output. The terminal output is as follows:

```
enter a value to the element 1:45
enter a value to the element 2:546
enter a value to the element 3:45
enter a value to the element 4:78
enter a value to the element 5:55
enter a value to the element 6:53
enter a value to the element 7:41
enter a value to the element 8:456
enter a value to the element 9:25
enter a value to the element 10:5465

the array is:455464578956341456255465
there are 3 even number in the array
```

Below the terminal, the status bar shows the path C:\User\3PCT\Desktop\C codes\p5.15\main.c, the build configuration Release in p5.15 (compiler: GNU GCC Compiler), and the system status (88°F Mostly sunny, 7:47 PM, 6/30/2023).

B section

01)

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

int main()
{
    int no[10];
    int positivec=0,negativec=0,zeroc=0;
    printf("Enter 10 numbers:\n");

    for (int i = 0; i < 10; i++)
    {
        scanf("%d", &no[i]);

        if (no[i] > 0)
            positivec++;
        else if (no[i]<0)
            negativec++;
        else
            zeroc++;
    }

    printf("Positive numbers: %d\n", positivec);
    printf("Negative numbers: %d\n", negativec);
    printf("Zero numbers: %d\n", zeroc);

    return 0;
}
```

The screenshot shows the Code::Blocks IDE interface. The main window displays a C source code file named 'main.c' with the following content:

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

int main()
{
    int no[10];
    int positivec=0, negativec=0, zeroc=0;
    printf("Enter 10 numbers:\n");

    for (int i = 0; i < 10; i++)
    {
        scanf("%d", &no[i]);

        if (no[i] > 0)
            positivec++;
        else if (no[i] < 0)
            negativec++;
        else
            zeroc++;

    }

    printf("Positive numbers: %d\n", positivec);
    printf("Negative numbers: %d\n", negativec);
    printf("Zero numbers: %d\n", zeroc);

    return 0;
}
```

To the right of the code editor is a terminal window showing the execution of the program. The user enters ten integers, and the program outputs the counts of positive, negative, and zero numbers. Below the terminal is a log window showing the build process.

```
Enter 10 numbers:
5
-4599
78
36
98
9
128
98
-42
0
Positive numbers: 5
Negative numbers: 3
Zero numbers: 2

Process returned 0 (0x0)   execution time : 16.567 s
Press any key to continue.
```

At the bottom, the taskbar shows the current weather (84°F Partly sunny) and system status (11:26 AM, 6/30/2023).

02)

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

int main()
{
    int marks[10],i,sum=0,max=0,min=0;
    printf("Enter the marks of 10 students:\n");

    for (i=0; i<10; i++)
    {
        printf("Student %d: ", i+1);
        scanf("%d",&marks[i]);

        if (marks[i]> max) {
            max = marks[i];
        }
        if (marks[i]<min) {
            min = marks[i];
        }
        sum += marks[i];
    }

    float average=(float)sum/10;

    printf("\nMaximum marks: %d\n", max);
    printf("Minimum marks: %d\n", min);
    printf("Average marks: %.2f\n", average);

    return 0;
}
```

The screenshot shows the Code::Blocks IDE interface. The top menu bar includes File, Edit, View, Search, Project, Build, Debug, Format, Help, Plugins, Tools, Tools+, Plugins, DnsyBlocks, Settings, Help. The main window displays the C source code for problem 02. Below the code editor is a terminal window showing the execution of the program. The terminal output is as follows:

```
[1] "C:\Users\SPCT\Desktop\C\code\pb52\bin\Release\pb52.exe"
Enter the marks of 10 students:
Student 1: 78
Student 2: 95
Student 3: 69
Student 4: 6
Student 5: 45
Student 6: 63
Student 7: 96
Student 8: 45
Student 9: 75
Student 10: 60

Maximum marks: 96
Minimum marks: 6
Average marks: 59.20

Process returned 0 (0x0) execution time : 11.509 s
Press any key to continue.
```

The bottom status bar shows the system tray icons and the date/time: 84°F Partly sunny 11:34 AM 6/30/2023

03)

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

int main()
{
    float prices[10],sum=0.0;
    int count=0;
    printf("Enter the prices of ten items:\n");

    for (int i = 0; i < 10; i++) {
        printf("Item %d: ", i + 1);
        scanf("%f", &prices[i]);
        sum += prices[i];

        if (prices[i] > 200) {
            count++;
        }
    }

    float average = sum/10;
    printf("Average value of an item: %.2f\n", average);
    printf("Number of items with price greater than 200: %d\n", count);

    return 0;
}
```

The screenshot shows the Code::Blocks IDE interface. The left pane displays the project management with three projects: pb5.1, pb5.2, and pb5.3. The pb5.3 project is selected, and its source code file main.c is open in the center editor window. The code itself is identical to the one provided above. To the right of the editor is the output window, which shows the execution of the program. It prompts the user to enter ten prices, then calculates and prints the average and the count of items above 200. The terminal at the bottom shows the command to run the program and its successful execution.

```
main.c [pb5.3] - Code::Blocks 20.03
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins Doxygen Settings Help
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins Doxygen Settings Help
<global> main():int
Management Projects Files FSy...
Workspace pb5.1 Sources main.c
pb5.2 Sources main.c
pb5.3 Sources main.c
main.c
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 int main()
5 {
6     float prices[10],sum=0.0;
7     int count=0;
8     printf("Enter the prices of ten items:\n");
9
10    for (int i = 0; i < 10; i++) {
11        printf("Item %d: ", i + 1);
12        scanf("%f", &prices[i]);
13        sum += prices[i];
14
15        if (prices[i] > 200) {
16            count++;
17        }
18    }
19
20    float average = sum/10;
21    printf("Average value of an item: %.2f\n", average);
22    printf("Number of items with price greater than 200: %d\n", count);
23
24    return 0;
25
26
C:\Users\3PCT\Desktop\C codes\pb5.3\main.c
C:\Users\3PCT\Desktop\C codes\pb5.3\bin\Release\pb5.3.exe
Enter the prices of ten items:
Item 1: 50.0
Item 2: 805.30
Item 3: 53.00
Item 4: 196.50
Item 5: 123.60
Item 6: 50
Item 7: 146.50
Item 8: 100
Item 9: 250.50
Item 10: 1000
Average value of an item: 288.44
Number of items with price greater than 200: 3
Process returned 0 (0x0) execution time : 44.056 s
Press any key to continue.

C:\User\3PCT\Desktop\C codes\pb5.3\main.c
C:\Users\3PCT\Desktop\C codes\pb5.3\bin\Release\pb5.3.exe
84°F Partly sunny 11:41 AM 6/30/2023
```

04)

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

```
int main()
{
    int a=1,b,c=1,d=0,e=0,f;
    printf("to end the program please enter the employee number as -999\n");
    while(c==1)

    {
        printf("\nenter employee number");
        scanf("%d",&a);
        if(a!=-999)
        {
            printf("enter the basic salary - ");
            scanf("%d",&b);
            c=1;

            if(b<0){printf("\nbasic salary cannot be negative\n");}
            else {printf("\nemployee number - %d\n",a);
                  printf("basic salary - Rs.%d\n",b);
                  if(b>=5000){d++;}}
            if(a==999)
            {
                c=0;printf("\nthere are %d employees whose basic salary is>=5000\n the program ends here. \n",d);
            }
        }
    }
```

The screenshot shows the Code::Blocks IDE interface. On the left, the project manager displays multiple source files named p5.1 through p5.15, pb4, and pb4manc. The main.c file is open in the code editor, containing the C code provided above. The output window on the right shows the execution of the program. It asks for an employee number, receives '123', and prints the basic salary as 100000. When asked for another employee number, it prints the message 'there are 1d employees whose basic salary is>=5000\n the program ends here.' followed by a newline. The status bar at the bottom shows system information like temperature, battery level, and date.

```
C:\Users\JPC\Documents\GitHub\pb4 - Code::Blocks 20.03
```

```
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins Doxygen Settings Help
```

```
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins Doxygen Settings Help
```

```
Global Project Manager: pb4
```

```
main.c
```

```
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 int main()
5 {
6     int a=1,b,c=1,d=0,e=0,f;
7     printf("to end the program please enter the employee number as -999\n");
8     while(c==1)
9     {
10         printf("\nenter employee number");
11         scanf("%d",&a);
12         if(a!=-999)
13         {
14             printf("enter the basic salary - ");
15             scanf("%d",&b);
16             c=1;
17
18             if(b<0){printf("\nbasic salary cannot be negative\n");}
19             else {printf("\nemployee number - %d\n",a);
20                   printf("basic salary - Rs.%d\n",b);
21                   if(b>=5000){d++;}}
22             if(a==999)
23             {
24                 c=0;printf("\nthere are %d employees whose basic salary is>=5000\n the program ends here. \n",d);
25             }
26         }
27     }
28
29 }
```

```
Output
```

```
"C:\Users\JPC\Documents\GitHub\pb4 - Code::Blocks 20.03"
to end the program please enter the employee number as -999
enter employee number123
enter the basic salary - 100000
employee number - 123
basic salary - Rs.100000
enter employee number
```

```
Log & others
```

```
Run: Release in pb4 (compiler: GNU GCC Compiler)
----- Run: Release in pb4 (compiler: GNU GCC Compiler) -----
Checking for existence: C:\Users\JPC\Desktop\C codes\pb4\bin\Release\pb4.exe
Run: Release in pb4 (compiler: GNU GCC Compiler) -
----- Run: Release in pb4 (compiler: GNU GCC Compiler) -----
Running: C:\Program Files (x86)\NVIDIA Corporation\PhysX\Common\CU\Device\3PCT\appData\Local\Microsoft\Windows\Temporary Internet Files\ContentTemp\5411\37119.html
Executing: "C:\Program Files\CodeBlocks\cb_console_runner.exe" "C:\Users\JPC\Desktop\C codes\pb4\bin\Release\pb4.exe" "
```

05)

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

int main()
{
    int a =1,b,c=1,d,e=0,f=0,g;

    char h='%';
    printf("to end the program enter the employee number as -ppp\n");
    while(c==1){
        printf("\nenter employee number - ");
        scanf("%d",&a);
        if(a!= -999){
            printf("enter the number of hours worked - ");
            scanf("%",&b);
            c=1;
            f++;
            if(b<0){printf("\n the number of hours cannot be negative\n");}
            else {if(b>40){d=b*200-40*50;}
            else{d=b*150;}
            printf("\n employee number - %d\n");
            printf("overtime payment - Rs.%d\n",d);}
            if(d>4000){e++;}

        }
        if(a== -999){c=0;g=(c*100)/f;printf("\nthere are %d %c employees whose overtime payment exceeds rs.4000.\nthe program ends here.",g,h);}
    }
}
```

The screenshot shows the Code::Blocks IDE interface. The left pane displays the project structure with multiple source files (main.c, main1.c, main2.c, main3.c, main4.c, main5.c, main6.c) under the 'Workspaces' tab. The right pane shows the code editor with the 'main.c' file open. The code is identical to the one provided in the text above. Below the editor is the 'Output' window, which shows the program's execution. It prompts for an employee number, receives '-123', and then asks for hours worked. The user enters '0' and '65'. The program calculates overtime payment based on these inputs and then asks for another employee number. The user enters '-999', which triggers the final output: 'there are 1 2 employees whose overtime payment exceeds rs.4000.' The status bar at the bottom indicates the current system information.