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MATRIC NUMBER: 18/ENG08/007

DEPARTMENT: BIOMEDICAL ENGINEERING

COURSE: ENG224; STRUCTURED COMPUTER PROGRAMMING

ASSIGNMENT SOLUTION

1).

- #include<stdio.h>
- #include<conio.h>
  
- void main( )
- {
- int days ,yr,mn,wk,d;
- printf("Enter the no of days");
- scanf("%d",&days);
  
- yr = days /365;
  
- mn =(days /365)/30;
  
- printf("Years= %d \t Months= %d \t Weeks =%d \t days = %d",yr,mn,wk,d);
- // converts days to years, weeks and months
- getch();
- }

The screenshot shows the Code::Blocks IDE interface. The main window displays the code for `main.c`:

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

void main()
{
    int days ,yr,mn,wk,d;
    printf("Enter the no of days");
    scanf("%d",&days);

    yr = days /365;
    mn =(days /365)/30;

    printf("Years= %d \t Months= %d \t Weeks =%d \t days = %d",yr,mn,wk,d);
    // converts days to years, weeks and months
    getch();
}
```

The build logs window shows the following warnings:

```
File Line Message
C:\Users\TITAN... 4 warning: return type of 'main' is not 'int' [-Wmain]
C:\Users\TITAN... In function 'main':
C:\Users\TITAN... 16 warning: 'wk' is used uninitialized in this function [-Wuninitialized]
C:\Users\TITAN... 18 warning: 'd' is used uninitialized in this function [-Wuninitialized]
```

The screenshot shows the Code::Blocks IDE interface with the terminal window open. The user has run the program and inputted "1343". The output shows the conversion of days into years, months, weeks, and days.

```
Enter the no of days1343
Years= 3         Months= 0       Weeks =89      days = 4200752
Process returned 13 (0xD)   execution time : 26.986 s
Press any key to continue.
```

The build logs window shows the following information:

```
-- Run: Debug in HOMEASSIGNMENT2 (compiler: GNU GCC Compiler) --
Checking for existence: C:\Users\TITANIA\Desktop\Cprogram\HOMEASSIGNMENT2\bin\Debug\HOMEASSIGNMENT2.exe
Executing: "C:\Program Files (x86)\CodeBlocks\cb_console_runner.exe" "C:\Users\TITANIA\Desktop\Cprogram\HOMEASSIGNMENT2\bin\Debug\HOMEASSIGNMENT2.exe" (in C:\Users\TITANIA\Desktop\Cprogram\HOMEASSIGNMENT2\.)
```

2).

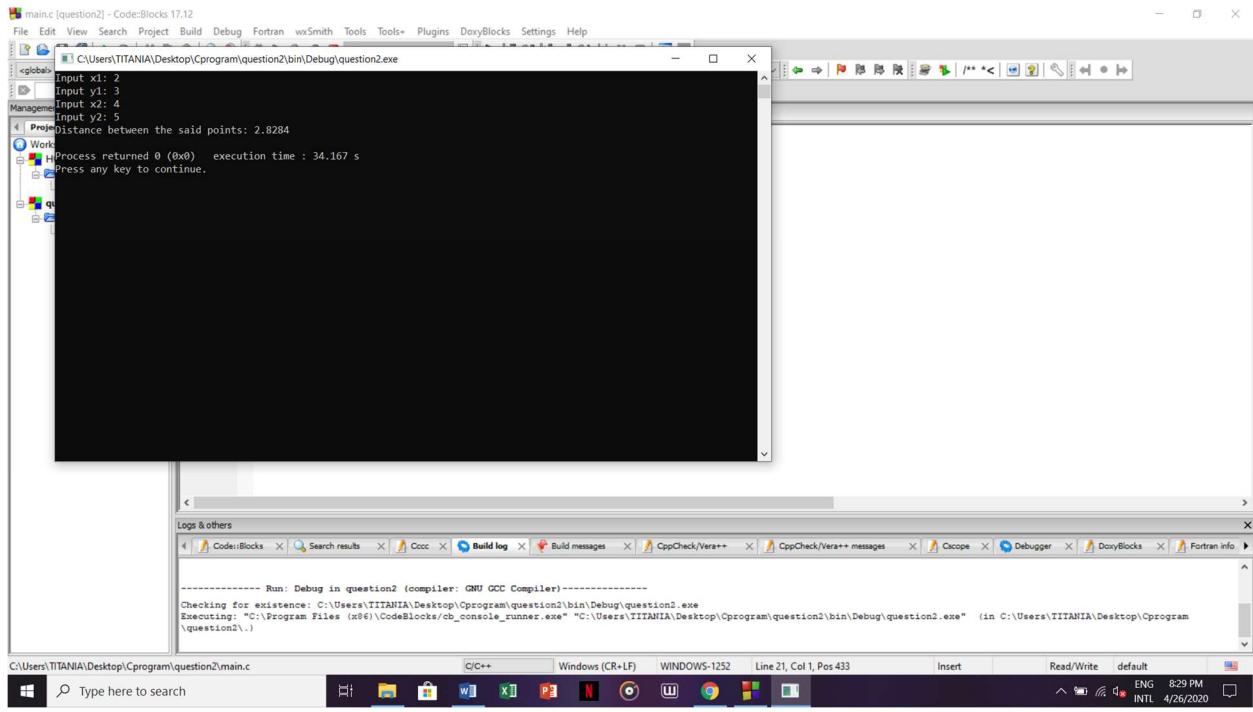
- `#include <stdio.h>`
- `#include <math.h>`

- int main() {
  - float x1, y1, x2, y2, gdistance;
  - printf("Input x1: ");
  - scanf("%f", &x1);
  - printf("Input y1: ");
  - scanf("%f", &y1);
- printf("Input x2: ");
  - scanf("%f", &x2);
  - printf("Input y2: ");
  - scanf("%f", &y2);
  - gdistance = ((x2-x1)\*(x2-x1))+((y2-y1)\*(y2-y1));
  - printf("Distance between the said points: %.4f", sqrt(gdistance));
  - printf("\n");
  - return 0;
- }

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

- Title Bar:** main.c [question2] - Code::Blocks 17.12
- Menu Bar:** File, Edit, View, Search, Project, Build, Debug, Fortran, wxSmith, Tools, Tools+, Plugins, DoxygenBlocks, Settings, Help
- Toolbar:** Standard toolbar with various icons for file operations.
- Project Explorer:** Management view showing the project structure:
  - Workspace: HOMEASSIGNMENT2
  - question2: Sources (main.c)
- Code Editor:** The main.c file is open, containing the provided C code for calculating the distance between two points.
- Logs & others:** A log window showing the build process and output:
 

```
Run: Debug in question2 (compiler: GNU GCC Compiler)
-----
Checking for existence: C:\Users\TITANIA\Desktop\Cprogram\question2\bin\Debug\question2.exe
Executing: "C:\Program Files (x86)\CodeBlocks\cb_console_runner.exe" "C:\Users\TITANIA\Desktop\Cprogram\question2\bin\Debug\question2.exe" (in C:\Users\TITANIA\Desktop\Cprogram\question2\)
Process terminated with status 0 (0 minute(s), 52 second(s))
```
- System Taskbar:** Shows the Windows Start button, search bar, taskbar buttons for various applications like File Explorer, Edge, and File Manager, and system status indicators.



3).

- int main() {
  - float x, y, z, P, A;
- printf("\nInput the first number: ");
- scanf("%f", &x);
- printf("\nInput the second number: ");
- scanf("%f", &y);
- printf("\nInput the third number: ");
- scanf("%f", &z);
  
- if(x < (y+z) && y < (x+z) && z < (y+x))
  - P = x+y+z;
  - printf("\nPerimeter = %.1f\n", P);
  
- }
- else
  - printf("Not possible to create a triangle..!");
  - }
- }

The screenshot shows the Code::Blocks IDE interface. The top window displays the source code for `main.c` (question 3). The code prompts the user for three float inputs (`x`, `y`, `z`) and checks if they can form a triangle. If so, it calculates and prints the perimeter. The bottom window shows the terminal output of the program's execution, where the user inputs 5, 7, and 3, resulting in a perimeter of 15.0.

```

main.c [question 3] - Code::Blocks 17.12
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins Doxygen Settings Help
Management X
Projects Symbols Files
HOMEASSIGNMENT2
Sources main.c
question2 Sources main.c
question 3 Sources main.c
Log & others
Logs & others
File Line Message
C:\Users\TITANIA\Desktop\Cprogram\question 3\main.c
In function 'main':
warning: unused variable 'A' [-Wunused-variable]
Build finished: 0 errors(s), 1 warning(s) (0 minute(s), 2 second(s))
Run: Debug in question 3 (compiler: GNU GCC Compiler)
Process returned 0 (0x0) execution time : 19.437 s
Press any key to continue.

C:\Users\TITANIA\Desktop\Cprogram\question 3\bin\Debug\question 3.exe
Input the first number: 5
Input the second number: 7
Input the third number: 3
Perimeter = 15.0
Process returned 0 (0x0) execution time : 19.437 s
Press any key to continue.

Run: Debug in question 3 (compiler: GNU GCC Compiler)
Checking for existence: C:\Users\TITANIA\Desktop\Cprogram\question 3\bin\Debug\question 3.exe
Executing: "C:\Program Files (x86)\CodeBlocks\cb_console_runner.exe" "C:\Users\TITANIA\Desktop\Cprogram\question 3\bin\Debug\question 3.exe" (in C:\Users\TITANIA\Desktop\Cprogram\question 3.)

```

4)

- `#include <stdio.h>`
- `int main()`
- {

  - `int age;`
  - `int cnt_baby=0,cnt_school=0,cnt_adult=0;`
  - `int count=0;`

- **while**(count<20)
    - {
      - printf("Enter age of person [%d]: ",count+1);
      - scanf("%d",&age);
      - if(age>=0 && age<=4)
        - cnt\_baby++;
      - else if(age>=5 && age<=17)
        - cnt\_school++;
      - else
        - cnt\_adult++;
      - // increasing the number of years by 1
      - count++;
    - }
  - printf("Baby age: %d\n",cnt\_baby);
  - printf("School age: %d\n",cnt\_school);
  - printf("Adult age: %d\n",cnt\_adult);
  - **return** 0;

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

- Title Bar:** main.c [question4] - Code::Blocks 17.12
- Menu Bar:** File, Edit, View, Search, Project, Build, Debug, Fortran, wxSmith, Tools, Tools+, Plugins, DoxyBlocks, Settings, Help
- Toolbar:** Includes icons for file operations, build, and debugging.
- Project Explorer (Management):** Shows the workspace structure:
  - Workspace
  - HOMEASSIGNMENT2
  - question2
  - question3
  - question4Each project has a Sources folder containing a main.c file.
- Code Editor (main.c):** Displays the following C code:

```
1  #include <stdio.h>
2  #include <stdlib.h>
3
4  int main()
5  {
6      int age;
7      int cnt_baby=0,cnt_school=0,cnt_adult=0;
8      int count=0;
9
10     while(count<20)
11     {
12         printf("Enter age of person [%d]: ",count+1);
13         scanf("%d",&age);
14
15         if(age==0 && age<4)
16             cnt_baby++;
17         else if(age>5 && age<17)
18             cnt_school++;
19         else
20             cnt_adult++;
21         // increasing the number of years by 1
22         count++;
23     }
24
25     printf("Baby age: %d\n",cnt_baby);
26     printf("School age: %d\n",cnt_school);
27     printf("Adult age: %d\n",cnt_adult);
28     return 0;
29 }
```
- Status Bar:** Logs & others
- Taskbar:** Shows multiple tabs for Code::Blocks, Search results, Build log, Build messages, CooCheck/Vera++, CooCheck/Vera++ messages, Cocco, Debouncer, DoxygenBlocks, and Fortran info. The current tab is C:\Users\TITANIA\Desktop\Cprogram\question4\main.c
- System Tray:** Shows icons for battery, signal, volume, and system status.
- Bottom Right:** ENG, 8:38 PM, 4/26/2020

The screenshot shows the CodeBlocks IDE interface with a terminal window displaying the execution of a C program named question4.c. The program prompts the user to enter ages for 20 people and classifies them as Baby, School age, or Adult. The terminal output is as follows:

```
main.c [question4] - Code:Blocks 17.12
File C:\Users\TITANIA\Desktop\Cprogram\question4\bin\Debug\question4.exe

Enter age of person [1]: 4
Enter age of person [2]: 14
Enter age of person [3]: 18
Enter age of person [4]: 67
Man
Enter age of person [5]: 5
Enter age of person [6]: 77
Enter age of person [7]: 18
Enter age of person [8]: 19
Enter age of person [9]: 21
Enter age of person [10]: 56
Enter age of person [11]: 90
Enter age of person [12]: 22
Enter age of person [13]: 33
Enter age of person [14]: 16
Enter age of person [15]: 15
Enter age of person [16]: 13
Enter age of person [17]: 10
Enter age of person [18]: 3
Enter age of person [19]: 4
Enter age of person [20]: 5
Baby age: 3
School age: 7
Adult age: 10

Process returned 0 (0x0) execution time : 77.561 s
Press any key to continue.
```

The code editor shows the last few lines of the C code:

```
28     return 0;
29 }
30 }
```

The logs & others tab at the bottom shows the build process:

```
----- Run: Debug in question4 (compiler: GNU GCC Compiler) -----
Checking for existence: C:\Users\TITANIA\Desktop\Cprogram\question4\bin\Debug\question4.exe
Executing: "C:\Program Files (x86)\CodeBlocks\cb_console_runner.exe" "C:\Users\TITANIA\Desktop\Cprogram\question4\bin\Debug\question4.exe" (in C:\Users\TITANIA\Desktop\Cprogram\question4\.)
```

5)

- #include <stdio.h>
  - int main()
    - {
    - int num, guess, tries = 0;
    - srand(time(0)); /\* seed random number generator \*/
    - num = rand() % 100 + 1; /\* random number between 1 and 100 \*/
  - printf("Guess My Number Game\n\n");
  - do
    - {
    - printf("Enter a guess between 1 and 100 : ");
    - scanf("%d", &guess);
    - tries++;
  - if (guess > num)
    - {
    - printf("Too high!\n\n");
    - }

- else if (guess < num)
    - {
    - printf("Too low!\n\n");
    - }
  - else
    - {
    - printf("\nCorrect! You got it in %d guesses!\n", tries);
    - }
  - }while (guess != num);
  - return 0;
  - }

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

- Title Bar:** main.c [question5] - Code::Blocks 17.12
- Menu Bar:** File, Edit, View, Search, Project, Build, Debug, Fortran, wxSmith, Tools, Tools+, Plugins, DoxyBlocks, Settings, Help
- Toolbar:** Includes icons for file operations, build, run, and debugging.
- Project Explorer (Management):** Workspace contains projects: HOMEASSIGNMENT2, question2, question3, question4, and question5. Each project has a Sources folder containing a main.c file.
- Code Editor (main.c):** Displays the C code for a "Guess My Number" game. The code includes a do-while loop for user input and conditional statements to check if the guess is too high, too low, or correct.
- Status Bar:** Shows the current file path (C:\Users\TITANIA\Desktop\Cprogram\question5\main.c), compiler (C/C++), operating system (Windows (CR+LF)), encoding (WINDOWS-1252), line number (Line 31, Col 6, Pos 648), and other system information.
- Taskbar:** Shows icons for various applications including File Explorer, Microsoft Edge, and Netflix.

main.c [question5] - Code::Blocks 17.12

File C:\Users\TITANIA\Desktop\Cprogram\question5\bin\Debug\question5.exe

Guess My Number Game

Enter a guess between 1 and 100 : 1  
Too low!

Enter a guess between 1 and 100 : 2  
Too low!

Enter a guess between 1 and 100 : 3  
Too low!

Enter a guess between 1 and 100 : 57  
Too low!

Enter a guess between 1 and 100 : 80  
Too low!

Enter a guess between 1 and 100 : 78  
Too low!

Enter a guess between 1 and 100 : 90  
Too high!

Enter a guess between 1 and 100 : 85  
Too high!

Enter a guess between 1 and 100 : 83  
Correct! You got it in 9 guesses!

process returned 0 (0x0) execution time : 28.493 s  
press any key to continue.

Code::Blocks Search results Build log Build messages CppCheck/Vera++ CppCheck/Vera++ messages Cscope Debugger DanyBlocks Fortran Info

Checking for existence: C:\Users\TITANIA\Desktop\Cprogram\question5\bin\Debug\question5.exe  
Executing: "C:\Program Files (x86)\CodeBlocks\cb\_console\_runner.exe" "C:\Users\TITANIA\Desktop\Cprogram\question5\bin\Debug\question5.exe" (in C:\Users\TITANIA\Desktop\Cprogram\question5\.)

Type here to search C/C++ Windows (CR+LF) WINDOWS-1252 Line 31, Col 6, Pos 648 Insert Read/Write default ENG 8:49 PM INTL 4/26/2020