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Exercise 2 Questions CS150 S01

Pg. 101-102 / 1-4 all, 6, 7, 9, include a flowchart for #9

I found out that the question 2,3 in my textbook version are different from other versions.

So, I decided to answer both versions just in case I wasn’t using the correct version.

I have the Global 8th Edition and the 7th Edition

1. What type of information should be specified in the block comment at the very beginning of the program?
   1. **The program’s purpose and brief description**
   2. **My name, or the name of the student/programmer – John Akujobi**
   3. **The date – September 10, 2022**
   4. **The course name and section – CSC 150 S1**
2. Which variables below are syntactically incorrect?

**MAX, peta, and \_mid are correct**

hash% - **Incorrect** (special characters not allowed) double - **Incorrect** (reserved keyword)

old avg - **Incorrect** (spaces not allowed) var@ - **Incorrect** (special characters not allowed)

#num - **Incorrect** because variables can only start with a letter or underscore

**Income, item, and C3po are correct**

Income – **Correct** two fold – **Incorrec**t (space character)

1time - **Incorrect** (started with a digit) c3po - **Correct**

Int – **Incorrect** (reserved keyword) income#1 - **Incorrect** (has special character)

Tom's – **Incorrect** (has special character) item- **Correct**

1. What is the output of the following program fragment? **Value of p = 20**

#include <stdio.h>

int main (void)

{

int p, l;

p = 0;

l = 5;

p = 4 \* l;

l++;

printf(“Value of p = %d\n”, p);

return (0);

}

**Value of p = 20**

3b. What is illegal about the following program fragment?

#include <stdio.h>

#define PI 3.14159

int

main(void)

{

double c, r;

scanf("%lf%lf", c, r);

PI = c / (2 \* r);

. . .

}

* 1. PI is a constant, yet it is being treated as a variable

In the line, PI = c / (2 \* r); we were trying to assign a value to the constant PI even after it has already been defined

* 1. There is no space between %lf%lf, as in, %lf %lf
  2. The inputs are not saved into the addresses of variables c and r because thers’s no &

As in &c, &r

* 1. We didn’t send the user a prompt to type in the input for variables c and r

This would affect user experience because the user only sees a blinking cursor with no instructions on what to do next.

* 1. Even though a part of C++, we didn’t add return (0);

Also,

1. Stylistically, which of the following identifiers would be good choices for names of constant macros?

**gravity** **G** **MAX\_SPEED** Sphere\_Size

**g, gravity and MAX\_SPEED are good choices**

6. The average pH of citrus fruits is 2.2, and this value has been stored in the variable avg\_citrus\_pH.

Provide a statement to display this information in a readable way.

**printf(“Average pH of citrus fruits = %d\n”, avg\_citrus\_pH);**

7. List three standard data types of C.

* 1. **char**
  2. **int**
  3. **float**

9. Write an algorithm that finds the area of a rectangle, stores the result in the variable called area and displays it.

//This program calculates the area of a rectangle of any given length and width provides by the user.

//Created by: John Akujobi on 9/11/2022

//CSC 150 - S01

#include <stdio.h>

int main (void)

{

//define the variables

float r\_breadth, r\_length, r\_area;

//ask the user for the rectangle's length and width

printf("Type the length of the rectangle: \n");

scanf("%f", &r\_length);

printf("Enter the breadth of the rectangle: \n");

scanf("%f", &r\_breadth);

//calculate the rectangles area

//Area of the rectangle = length \* width

r\_area = r\_length \* r\_breadth;

//print the area of the rectangle by returning the variable r\_area to the user

printf("The area of the rectangle is %f", r\_area);

printf("\n");

return (0);

}

9(a). Write an algorithm that allows for the input of an integer value, doubles it, subtracts 10, and displays the result.

//This program takes an integer from the user, doubles it, subtracts 10 from it, and displays the result.

//Created by: John Akujobi on 9/11/2022

//CSC 150 - S01

#include <stdio.h>

int main (void)

{

//define the variables

//number is the integer being calculated on

//result is the result of the calculation

//both number and result are integers

int number, result;

//ask the user for an integer number

printf("Type a number (no decimal points): \n");

scanf("%d", &number);

//Perform the calculation

//result = (number \*2)-10

result = ((number \*2)-10);

//print result to the user

printf("The result of the calculation is %d", result);

printf("\n");

return (0);

}

