CSCI 3341 Assignment 2 (Pointer and some C Practices)

deadline --- **11:30PM Feb 1, Thursday, 2024.**

1. (20 points) What is the output of the following C program? If you believe there is a compile error or runtime error, you should point out all the errors. You should be able to tell the answer without compiling or running it.

#include <stdio.h>

int main()

{

int x=6;

int \*q=&x;

x+=1; (\*q)+=2;

int y=x\*((\*q)-1);

printf("y is %d\n",y);

return 0;

}

**Answer:**

Output: y is 72

2. (20 points) What is the output of the following C program? If you believe there is a compile error or runtime error, you should point out all the errors. You should be able to tell the answer without compiling or running it.

#include <stdio.h>

int main()

{

int x=6;

int \*q=&x, &qq=\*x;

(\*q)-=2; (\*qq)+=3;

int y=(\*qq)\*((\*q)-2);

printf("y is %d\n",y);

return 0;

}

**Answer:**

There are errors in the provided C program:

1. In the line int \*q=&x, &qq=\*x; the second part &qq=\*x; is attempting to assign the value of \*x to &qq, which is incorrect.

It should be: **int \*q=&x, \*qq=&x;**

1. In the line (\*q)-=2; (\*qq)+=3; is trying to dereference qq and increment its value. However, qq is a pointer.

The correct way should be: **(\*q)-=2; (\*qq)+=3;**

A screenshot of a computer

Description automatically generated

3. (20 points) What is the output of the following C program? If you believe there is a compile error or runtime error, you should point out all the errors. You should be able to tell the answer without compiling or running it.

#include <stdio.h>

int main()

{

int x=23,y=8;

int q=x/y,r=x%y,r2=(x>y);

double v=(double)x/y;

printf("q=%d,r=%d,r2=%d,v=%f\n",q,r,r2,v);

return 0;

}

**Answer:**

Output: q=2,r=7,r2=1,v=2.875000

4. (20 points) What is the output of the following C program? Point out all the errors if you believe there are any compile errors or potential runtime errors. You should be able to tell the answer without compiling or running it.

#include <stdio.h>

void myfun(char a[], int size) {

char t, \*p, \*q;

p=a; q=a+size-1;

while(p<q) {

t=\*p; \*p=\*q; \*q=t;

p++; q--;

}//while

}//myfun

int main(int argc, char \*argv[]) {

char a[10];

int i;

for(i=0;i<10;i++) a[i]='e'+i;

myfun(a,10);

for(i=0;i<10;i++) printf("%c",a[i]); printf("\n");

return 0;

}//main

**Answer:**

Output: nmlkjihgfe

5. (20 points) What is the output of the following C program? Point out all the errors if you believe there are any compile errors or potential runtime errors. You should be able to tell the answer without compiling or running it.

#include <stdio.h>

void swap(char \*p, char \*q) {

char \*t;

t=p; p=q; q=t;

}//swap

int main(int argc, char \*argv[]) {

char a[10];

int i;

for(i=0;i<10;i++) a[i]='e'+i;

for(i=0;i<5;i++) swap(&a[i],&a[9-i]);

printf("%c%c\n",a[0],a[9]);

return 0;

}//main

**Answer:**

Output: en

checklist of the files to be submitted:

one text solution file A2.txt for problems 1~5 (to Dropbox A2)