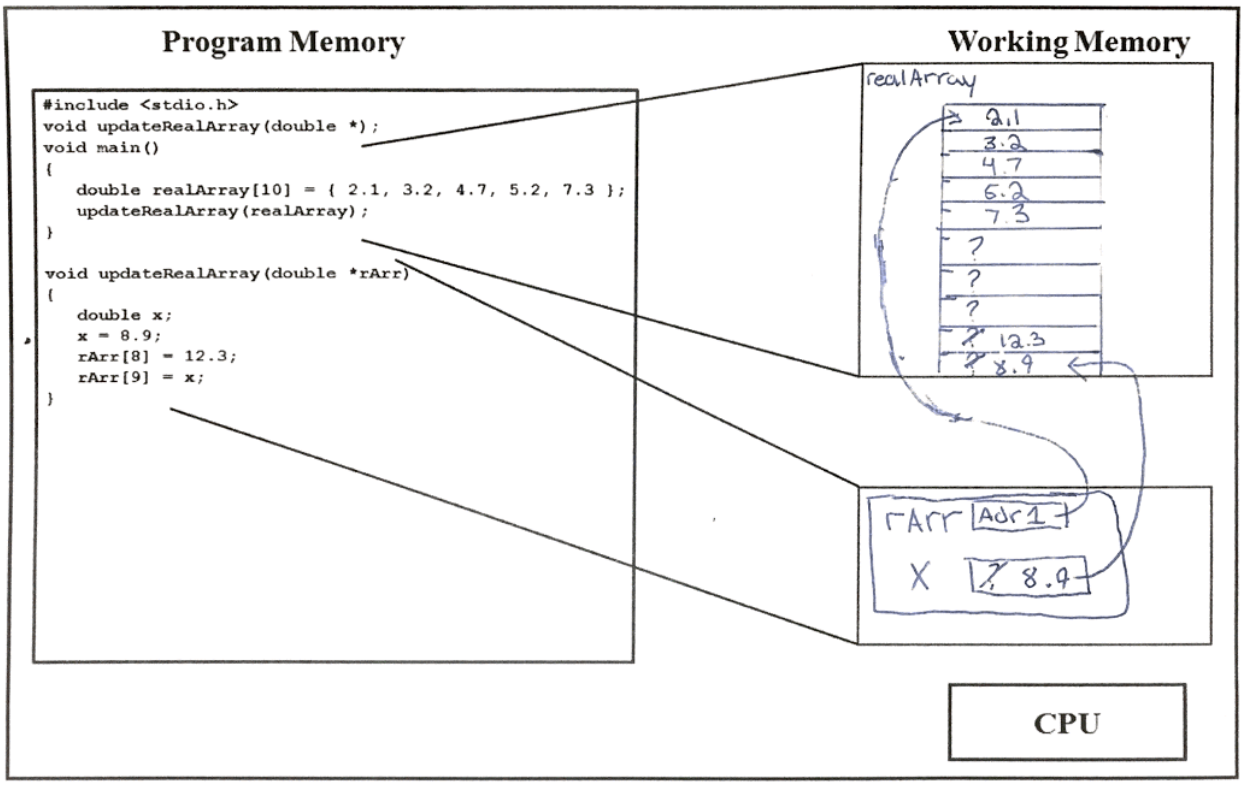
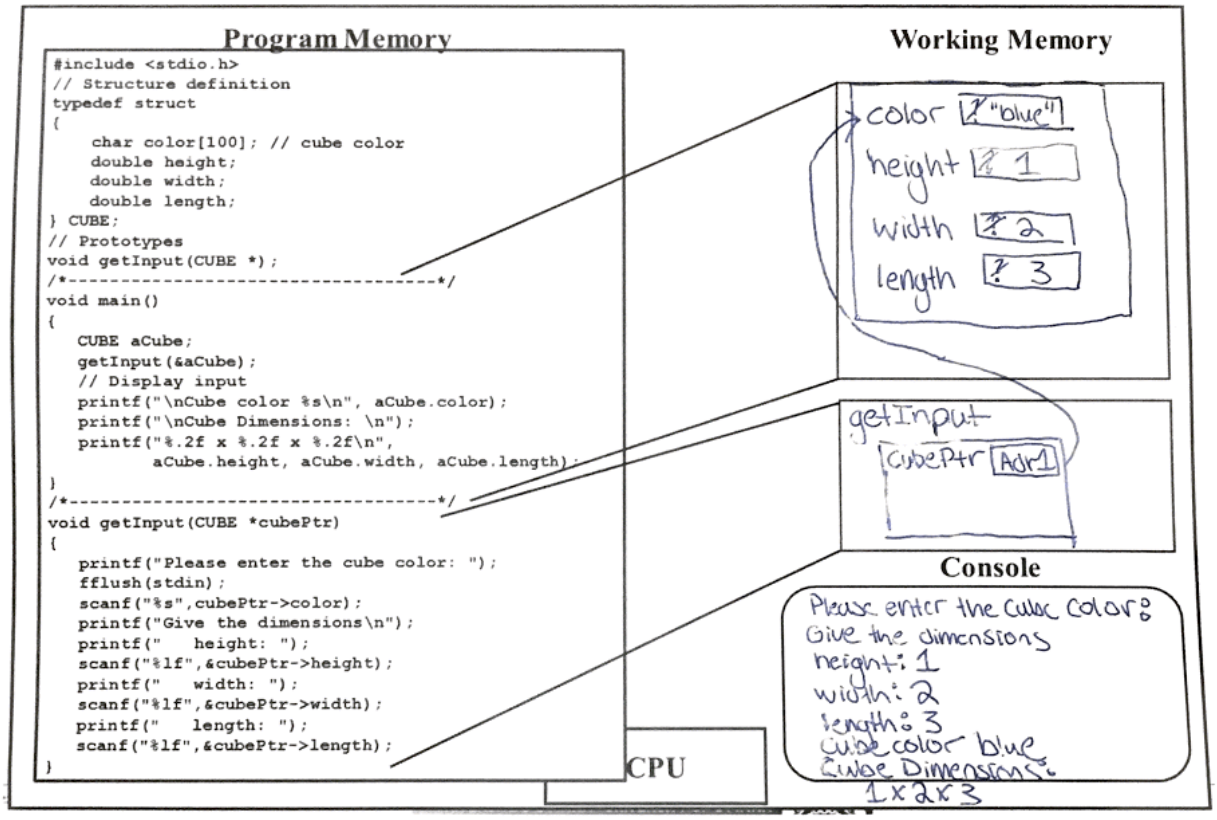
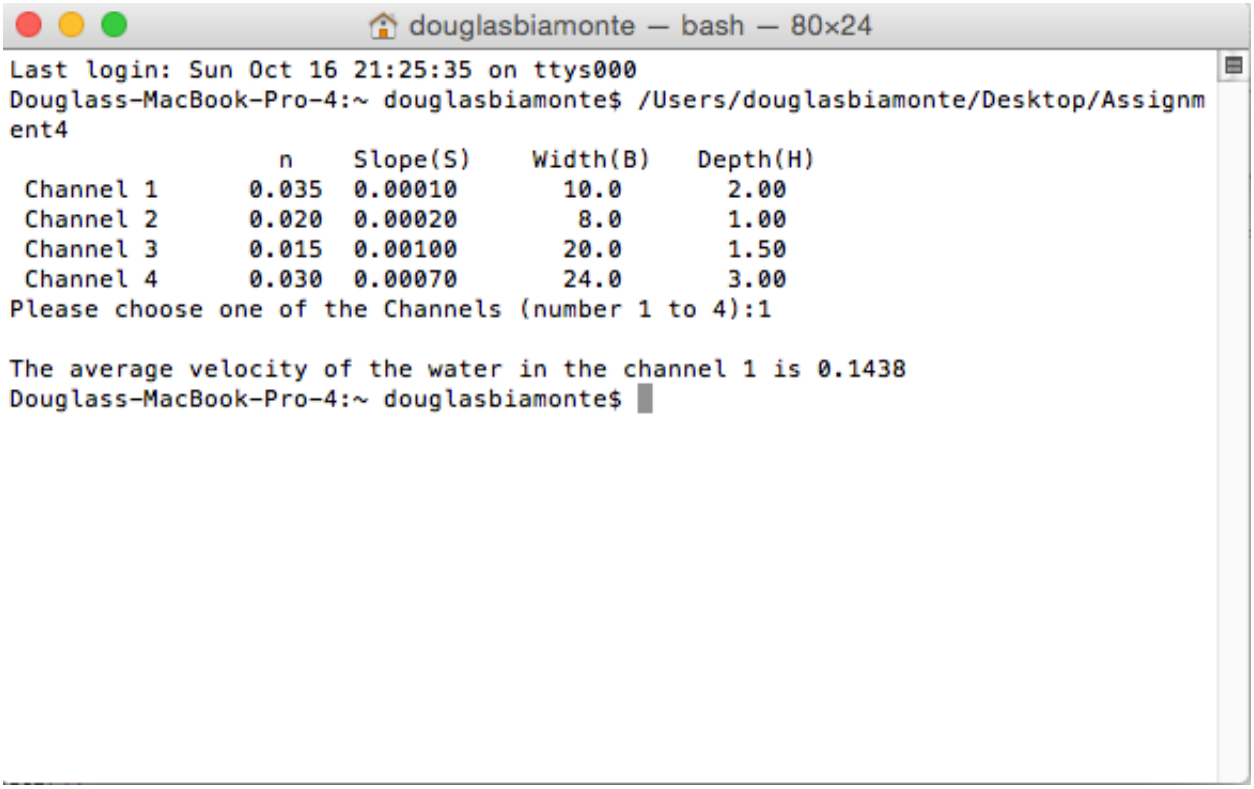
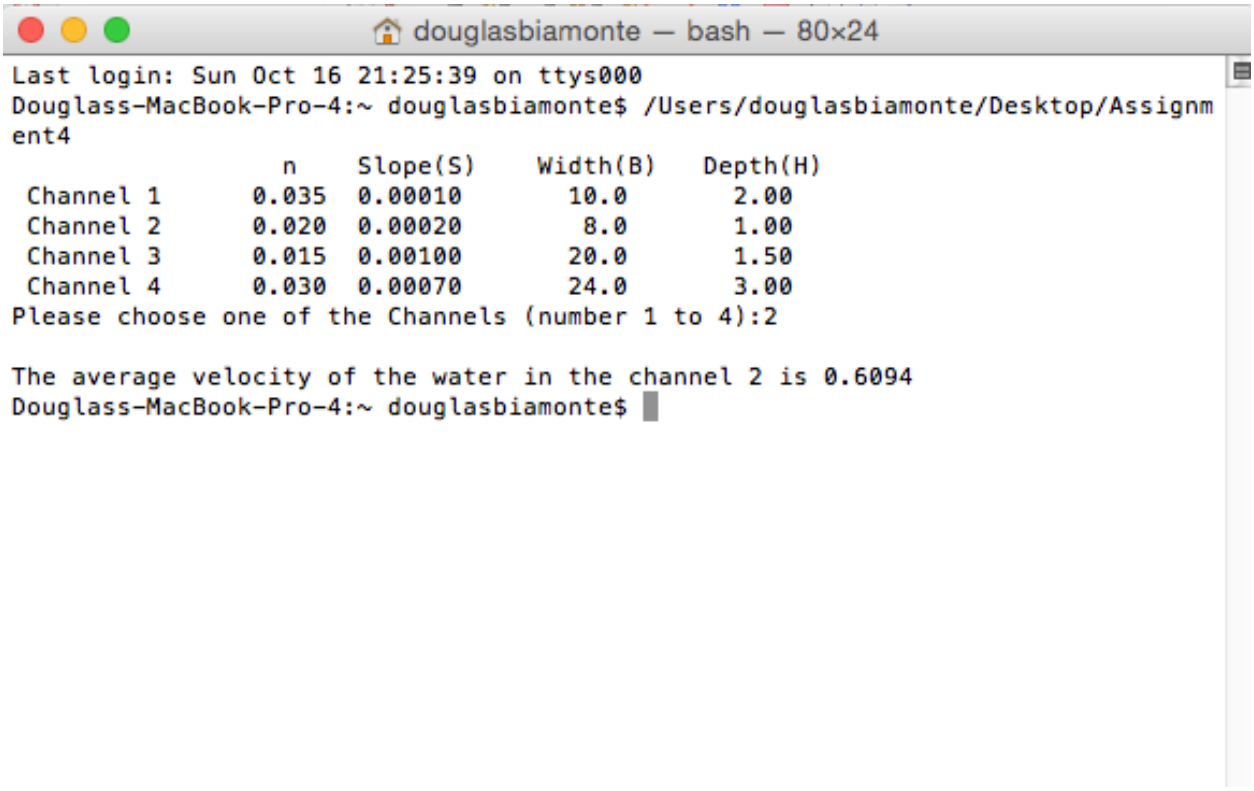

Program Memory
Working Memory
#include <stdio.h>
void updateRealArray(double *);
void main()
{
double realArray[10] = { 2.1, 3.2, 4.7, 5.2, 7.3 };
updateRealArray(realArray);
}
void updateRealArray(double *rArr)
{
double x;
x = 8.9;
rArr[8] = 12.3;
rArr[9] = x;
}
realArray
2.1
3.2
4.7
5.2
7.3
?
?
?
12.3
8.9
rArr
Adr1
X
8.9
CPU

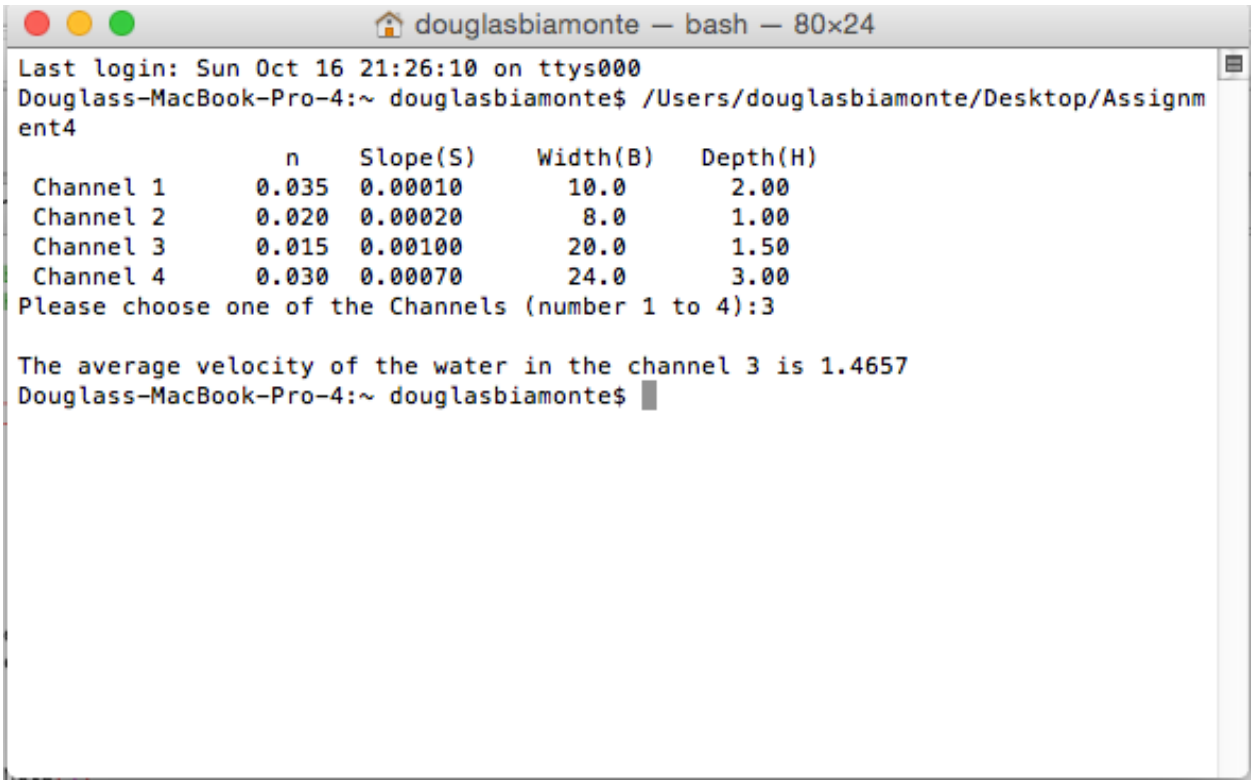

Program Memory
Working Memory
#include <stdio.h>
// Structure definition
typedef struct
{
char color[100]; // cube color
double height;
double width;
double length;
} CUBE;
// Prototypes
void getInput(CUBE *);
/*-----------------------------------*/
void main()
{
CUBE aCube;
getInput(&aCube);
// Display input
printf("\nCube color %s\n", aCube.color);
printf("\nCube Dimensions: \n");
printf("%.2f x %.2f x %.2f\n",
aCube.height, aCube.width, aCube.length);
}
/*-----------------------------------*/
void getInput(CUBE *cubePtr)
{
printf("Please enter the cube color: ");
fflush(stdin);
scanf("%s",cubePtr->color);
printf("Give the dimensions\n");
printf(" height: ");
scanf("%lf",&cubePtr->height);
printf(" width: ");
scanf("%lf",&cubePtr->width);
printf(" length: ");
scanf("%lf",&cubePtr->length);
}
color
"blue"
height
1
width
2
length
3
getInput
cubePtr
Adr1
Console
Please enter the cube color:
Give the dimensions
height: 1
width: 2
length: 3
Cube color blue
Cube Dimensions:
1x2x3
CPU

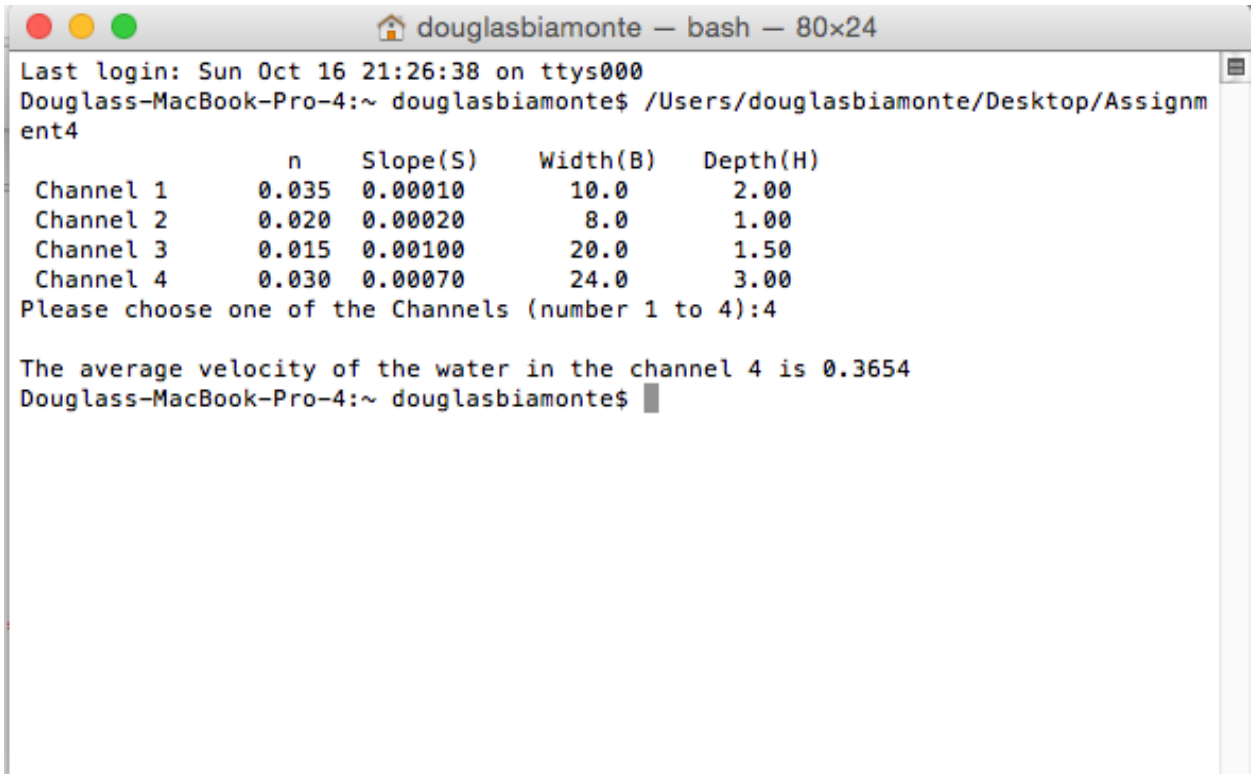
```
#include <stdio.h>
#include <stdlib.h>
#include <math.h>

typedef struct
{
   char name[10];
   double n;
   double S;
   double B;
   double H;

}CHANNEL;

int chooseChannel(CHANNEL *);
double CalcVelocity(CHANNEL *,int);

void main(void)
{
   CHANNEL channels[4] =
   {
      {"Channel 1", 0.035, 0.0001, 10.0, 2.0},
      {"Channel 2", 0.020, 0.0002, 8.0, 1.0},
      {"Channel 3", 0.015, 0.0010, 20.0, 1.5},
      {"Channel 4", 0.030, 0.0007, 24.0, 3.0},
   };

   int c;
   double velocity;
   c = chooseChannel(channels);
   velocity = CalcVelocity(channels, c);
   printf("\nThe average velocity of the water in the channel %0.d is %.4f\n", c, velocity);
}

int chooseChannel(CHANNEL *varPtr)
{
  int c;
  printf("                n    Slope(S)    Width(B)   Depth(H)\n");
  printf("%10s %10.3f %8.5f %10.1f %10.2f\n", varPtr[0].name, varPtr[0].n, varPtr[0].S,
varPtr[0].B, varPtr[0].H);
  printf("%10s %10.3f %8.5f %10.1f %10.2f\n", varPtr[1].name, varPtr[1].n, varPtr[1].S,
varPtr[1].B, varPtr[1].H);
  printf("%10s %10.3f %8.5f %10.1f %10.2f\n", varPtr[2].name, varPtr[2].n, varPtr[2].S,
varPtr[2].B, varPtr[2].H);
  printf("%10s %10.3f %8.5f %10.1f %10.2f\n", varPtr[3].name, varPtr[3].n, varPtr[3].S,
varPtr[3].B, varPtr[3].H);
  printf("Please choose one of the Channels (number 1 to 4):");
  scanf("%d", &c);
```

```
  return(c);
}


double CalcVelocity(CHANNEL *P, int c)
{
   double velocity;
   c = c-1;
   velocity = (P[c].B/P[c].H)/(P[c].B+(2*P[c].H));
   velocity = pow(velocity, 2.0/3.0);
   velocity = sqrt(P[c].S)*velocity;
   velocity = velocity/P[c].n;
   return(velocity);
}
```




douglasbiamonte — bash — 80×24
Last login: Sun Oct 16 21:25:39 on ttys000
Douglass-MacBook-Pro-4:~ douglasbiamonte$ /Users/douglasbiamonte/Desktop/Assignment4
n Slope(S) Width(B) Depth(H)
Channel 1 0.035 0.00010 10.0 2.00
Channel 2 0.020 0.00020 8.0 1.00
Channel 3 0.015 0.00100 20.0 1.50
Channel 4 0.030 0.00070 24.0 3.00
Please choose one of the Channels (number 1 to 4):2
The average velocity of the water in the channel 2 is 0.6094
Douglass-MacBook-Pro-4:~ douglasbiamonte$


douglasbiamonte — bash — 80×24
Last login: Sun Oct 16 21:26:10 on ttys000
Douglass-MacBook-Pro-4:~ douglasbiamonte$ /Users/douglasbiamonte/Desktop/Assignment4
n Slope(S) Width(B) Depth(H)
Channel 1 0.035 0.00010 10.0 2.00
Channel 2 0.020 0.00020 8.0 1.00
Channel 3 0.015 0.00100 20.0 1.50
Channel 4 0.030 0.00070 24.0 3.00
Please choose one of the Channels (number 1 to 4):3
The average velocity of the water in the channel 3 is 1.4657
Douglass-MacBook-Pro-4:~ douglasbiamonte$


douglasbiamonte — bash — 80×24
Last login: Sun Oct 16 21:26:38 on ttys000
Douglass-MacBook-Pro-4:~ douglasbiamonte$ /Users/douglasbiamonte/Desktop/Assignment4
n Slope(S) Width(B) Depth(H)
Channel 1 0.035 0.00010 10.0 2.00
Channel 2 0.020 0.00020 8.0 1.00
Channel 3 0.015 0.00100 20.0 1.50
Channel 4 0.030 0.00070 24.0 3.00
Please choose one of the Channels (number 1 to 4):4
The average velocity of the water in the channel 4 is 0.3654
Douglass-MacBook-Pro-4:~ douglasbiamonte$