**PATUAKHALI SCIENCE AND TECHNOLOGY UNIVERSITY**

**COURSE CODE CIT-112**

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Assignment: **07**

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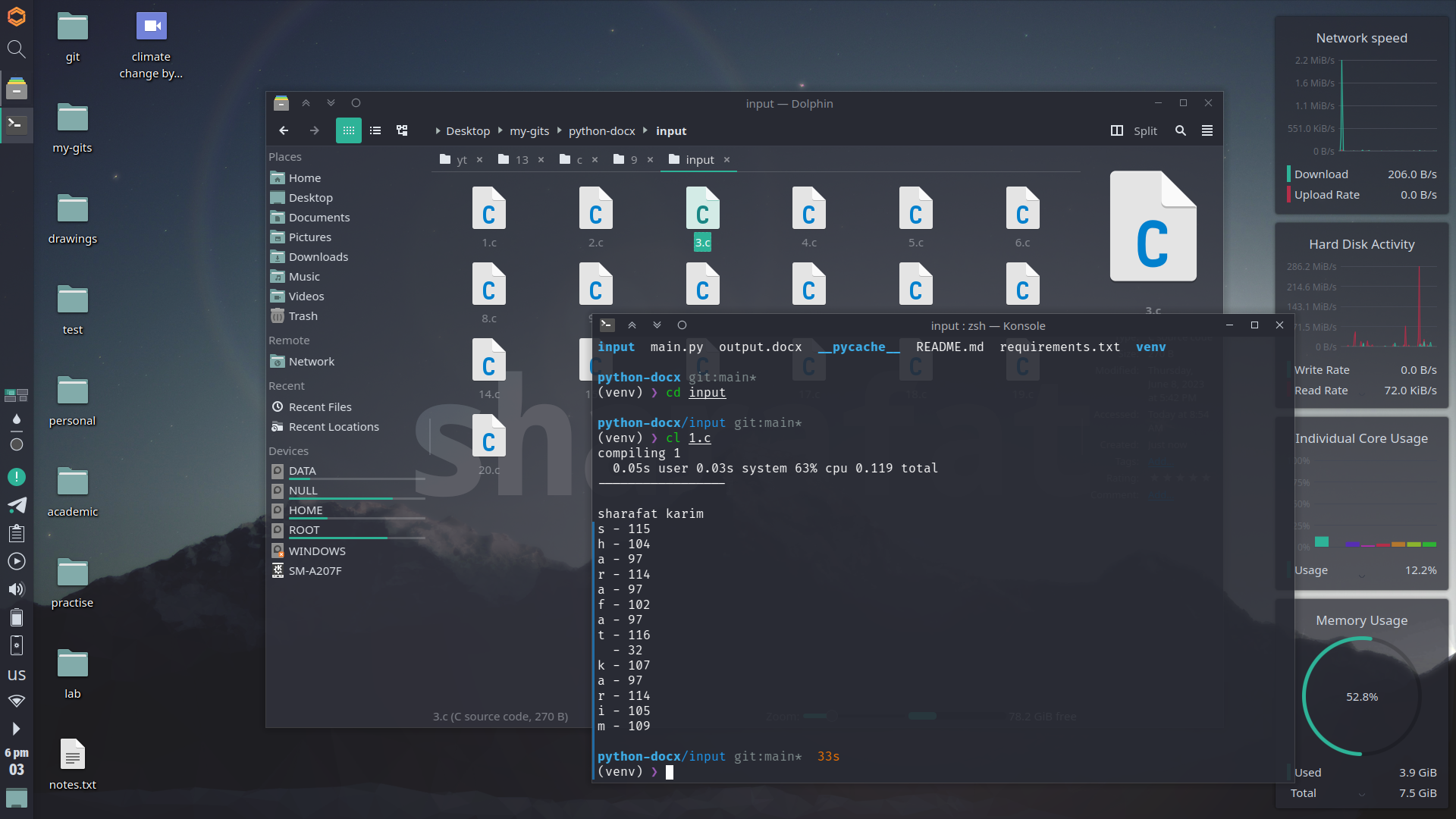
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# 1 Write a program, which reads your name from the keyboard and outputs a list of ASCII codes, which represent your name.

#include<stdio.h>  
  
int main()  
{  
 char name[32];  
 scanf("%[^\n]", name);  
   
 for (int i=0; name[i] != '\0'; i++)  
 {  
 printf("%c - %d\n", name[i], name[i]);  
 }  
}



# 2 Write a program to do string processing

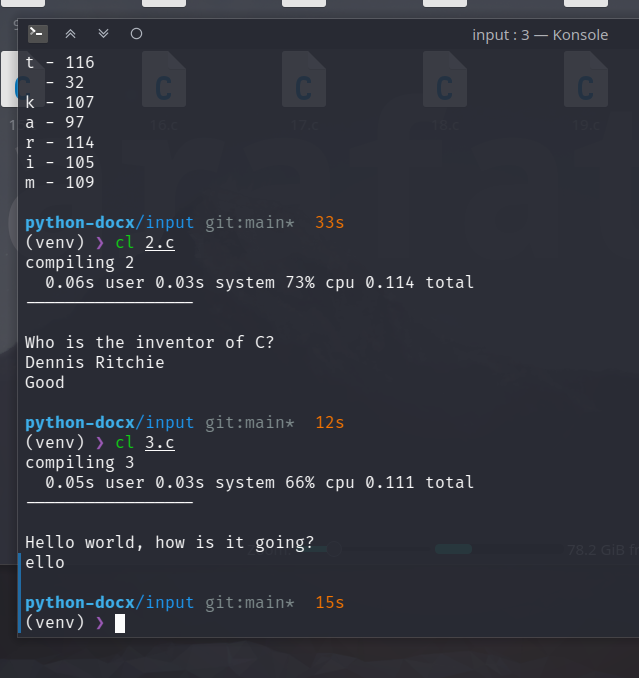
# 

#include <stdio.h>  
#include <string.h>  
  
int main()  
{  
 char answer[64];  
 int attemp = 3;  
 while (attemp--)  
 {  
 printf("Who is the inventor of C? \n");  
 scanf(" %[^\n]", answer);  
 if (strcmp(answer, "Dennis Ritchie") == 0)  
 {  
 printf("Good\n");  
 break;  
 }  
 else  
 {  
 printf("try again\nCorrect answer: Dennis Ritchie\n");  
 }  
 }  
}



# 3 Write a program to extract a portion of a character string and print the extracted string. Assume that m characters are extracted, starting with the nth character.

#include<stdio.h>  
  
#define init 2  
#define end 6  
  
int main()  
{  
 char string[32], modified\_string[32];  
 scanf("%[^\n]", string);  
  
 for (int i= init-1; i < end; i++)  
 {  
 modified\_string[i-init+1] = string[i];  
 }  
  
 printf("%s\n", modified\_string);  
}



# 4 Write a program which will read a text and count all occurrences of a particular word.

#include<stdio.h>  
  
#define occurance 'a'  
  
int main()  
{  
 char string[32];  
 scanf("%[^\n]", string);  
 int i=0, count = 0;  
 while (string[i] != '\0')  
 {  
 if (string[i++] == occurance)  
 {  
 count++;  
 }  
 }  
 printf("Total occurance of %c = %d\n", occurance, count);  
}



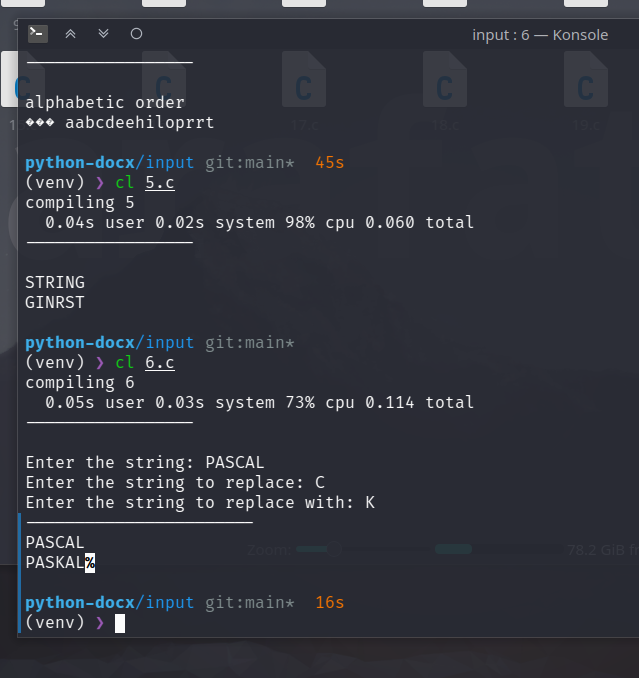
# 5 Write a program which will read a string and rewrite it in the alphabetical order. For example, the word STRING should be written as GINRST.

#include<stdio.h>  
#include<string.h>  
  
int main()  
{  
 char name[32];  
 scanf("%[^\n]", name);  
   
 int size = strlen(name);  
 int i, j;  
 for (i=0; i < size; i++)  
 {  
 for (j=0; j < size-i-1; j++)  
 {  
 if (name[j] > name[j+1])  
 {  
 char temp = name[j];  
 name[j] = name[j+1];  
 name[j+1] = temp;  
 }  
 }  
 }  
 printf("%s\n", name);  
}



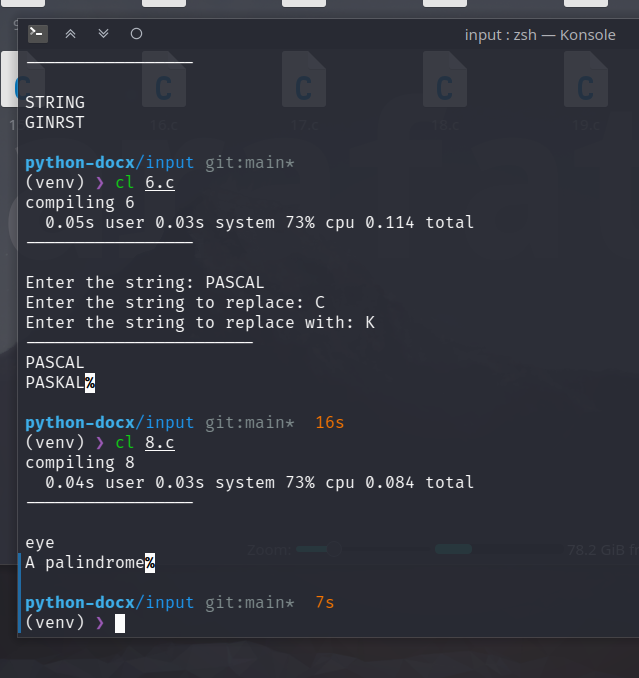
# 6 Write a program to replace a particular word by another word in a given string. For example, the word “PASCAL” should be replaced by “C” in the text “It is good to program in PASCAL language.”

#include<stdio.h>  
#include<string.h>  
  
int main()  
{  
 char str[64], modified\_str[64];  
 printf("Enter the string: ");  
 scanf("%[^\n]", str);  
 char replace\_from[16];  
 printf("Enter the string to replace: ");  
 scanf("%s", replace\_from);  
 char replace\_with[16];  
 printf("Enter the string to replace with: ");  
 scanf("%s", replace\_with);  
 int size = strlen(str);  
  
 printf("-----------------------\n");  
  
 int i, temp;  
 for (i=0, temp=0; i<size; i++)  
 {  
 if (str[i] == replace\_from[0])  
 {  
 for (int j=0; j<strlen(replace\_from);j++)  
 {  
 if (str[i-j] != replace\_from[j])  
 break;  
 else   
 {  
 for (int k=0; k<strlen(replace\_with); k++)  
 {  
 modified\_str[temp++] = replace\_with[k];  
 i += strlen(replace\_from);  
 }  
 }  
 }  
 }  
 modified\_str[temp++] = str[i];  
 }  
 modified\_str[temp] = '\0';  
  
 printf("%s\n", str);  
 printf("%s", modified\_str);  
}



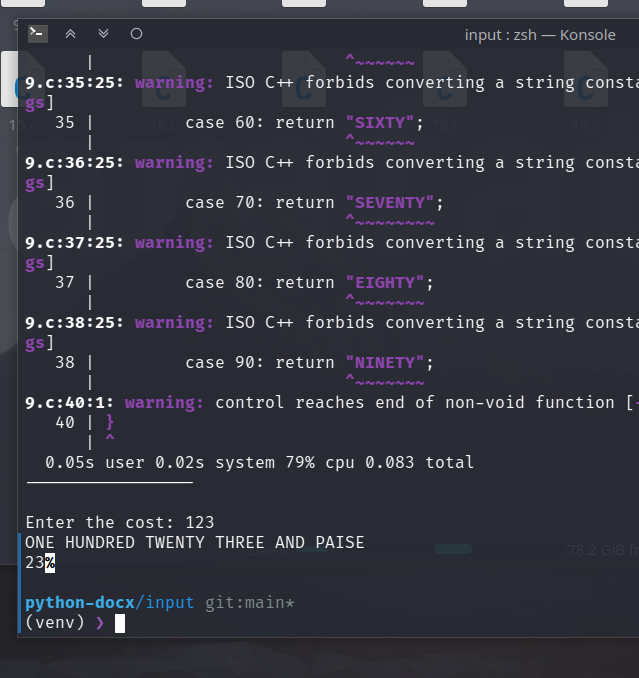
# 8 Write a program that reads a string from the keyboard and determines whether the string is a palindrome or not. (A string is a palindrome if it can be read from left and right with the same meaning. For example, Madam and Anna are palindrome strings. Ignore capitalization).

#include<stdio.h>  
#include<string.h>  
  
int main()  
{  
 char string[64];  
 scanf("%[^\n]", string);  
 int size = strlen(string);  
  
 for (int i=0, j=size-1; i < size/2; i++, j--)  
 {  
 if (string[i] != string[j])  
 {  
 printf("Not a palindrome");  
 return 0;  
 }  
 }  
 printf("A palindrome");  
 return 0;  
}



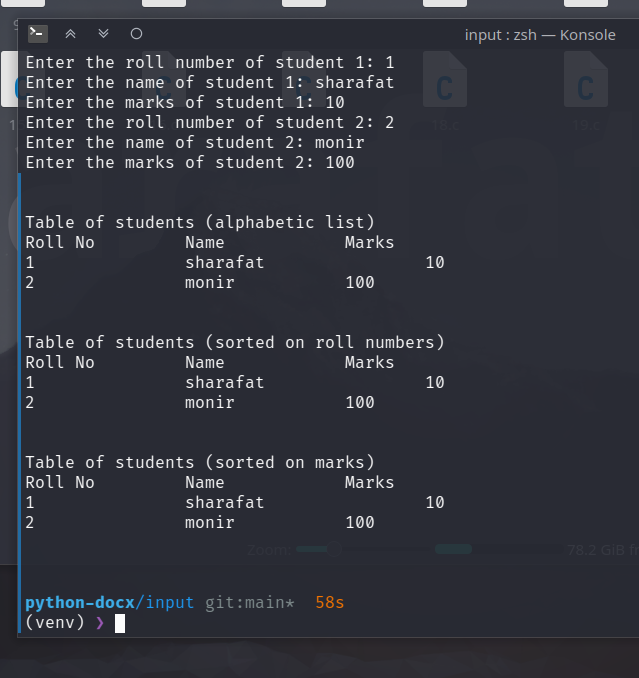
# 9 Write program that reads the cost of an item in the form RRRR.PP (Where RRRR denotes Rupees and PP denotes Paise) and converts the value to a string of words that expresses the numeric value in words. For example, if we input 125.75, the output should be “ONE HUNDRED TWENTY FIVE AND PAISE SEVENTY FIVE”.

// Write program that reads the cost of an item in the form RRRR.PP (Where RRRR denotes Rupees and PP denotes Paise) and converts the value to a string of words that expresses the numeric value in words.  
// For example, if we input 125.75, the output should be “ONE HUNDRED TWENTY FIVE AND PAISE SEVENTY FIVE”.  
  
#include<stdio.h>  
#include<string.h>  
  
char\* get\_first\_nine\_number(int num)  
{  
 switch(num)  
 {  
 case 0: return "ZERO";  
 case 1: return "ONE";  
 case 2: return "TWO";  
 case 3: return "THREE";  
 case 4: return "FOUR";  
 case 5: return "FIVE";  
 case 6: return "SIX";  
 case 7: return "SEVEN";  
 case 8: return "EIGHT";  
 case 9: return "NINE";  
 case 10: return "TEN";  
 case 11: return "ELEVEN";  
 case 12: return "TWELVE";  
 case 13: return "THIRTEEN";  
 case 14: return "FOURTEEN";  
 case 15: return "FIFTEEN";  
 case 16: return "SIXTEEN";  
 case 17: return "SEVENTEEN";  
 case 18: return "EIGHTEEN";  
 case 19: return "NINETEEN";  
 case 20: return "TWENTY";  
 case 30: return "THIRTY";  
 case 40: return "FOURTY";  
 case 50: return "FIFTY";  
 case 60: return "SIXTY";  
 case 70: return "SEVENTY";  
 case 80: return "EIGHTY";  
 case 90: return "NINETY";  
 }  
}  
  
  
char\* get\_number(int num)  
{  
 char string[50];  
 if (num <= 20 )  
 return get\_first\_nine\_number(num);  
 else  
 {  
 strcpy(string, "");  
 strcat(string, get\_first\_nine\_number((num/10)\*10));  
 strcat(string, " ");  
 strcat(string, get\_first\_nine\_number(num%10));  
 char \*string2 = string;  
 return(string2);  
 }  
}  
  
int main()  
{  
 float cost;  
 printf("Enter the cost: ");  
 scanf("%f", &cost);  
  
 int rupees = (int)cost;  
 int paise = (int)((cost - rupees) \* 100);  
   
   
 char rupees\_string[100];  
 strcpy(rupees\_string, "");  
   
   
 if ( rupees >= 1000 )  
 {  
 int thousands = rupees / 1000;  
 strcat(strcat(rupees\_string, get\_number(thousands)), " THOUSAND ");  
 rupees = rupees % 1000;  
 }  
 if ( rupees >= 100 )  
 {  
 int hundreds = rupees / 100;  
 strcat(strcat(rupees\_string, get\_number(hundreds)), " HUNDRED ");  
 rupees = rupees % 100;  
 }  
 if ( rupees >= 1 )  
 {  
 strcat(strcat(rupees\_string, get\_number(rupees)), " AND PAISE ");  
 }  
 if ( paise >= 1 )  
 {  
 strcat(rupees\_string, get\_number(paise));  
 }  
   
 printf("%s", rupees\_string);  
 printf("\n%d", rupees);  
}



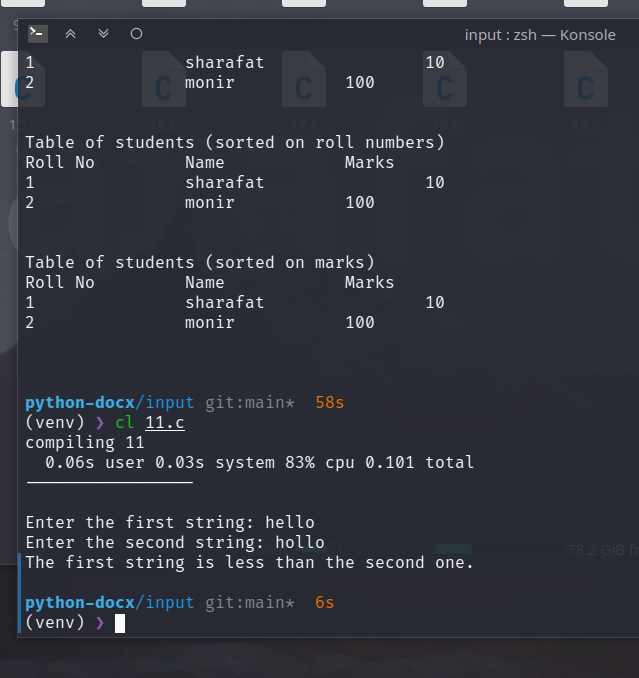
# 10 Develop a program that will read and store the details of a list of students in the format

#include<stdio.h>  
  
struct student  
{  
 int roll\_no;  
 char name[50];  
 int marks;  
};  
  
void sorting\_array\_with\_index(int main[], int sorted\_index[])  
{  
 int n = sizeof(main)/sizeof(main[0]);  
   
 for (int i = 0; i < n; i++)  
 {  
 sorted\_index[i] = i;  
 }  
  
 for (int i = 0; i < n; i++)  
 {  
 for (int j = i; j < n-1; j++)  
 {  
 if (main[sorted\_index[j]] > main[sorted\_index[j+1]])  
 {  
 int temp = sorted\_index[j];  
 sorted\_index[j] = sorted\_index[j+1];  
 sorted\_index[j+1] = temp;  
 }  
 }  
 }  
}  
  
int main()  
{  
 int n;  
 printf("Enter the number of students: ");  
 scanf("%d", &n);  
 struct student students[n];  
 for (int i = 0; i < n; i++)  
 {  
 printf("Enter the roll number of student %d: ", i+1);  
 scanf("%d", &students[i].roll\_no);  
 printf("Enter the name of student %d: ", i+1);  
 scanf("%s", students[i].name);  
 printf("Enter the marks of student %d: ", i+1);  
 scanf("%d", &students[i].marks);  
 }  
  
 printf("\n\n");  
 printf("Table of students (alphabetic list)\n");  
 printf("Roll No\t\tName\t\tMarks\n");  
 for (int i = 0; i < n; i++)  
 {  
 printf("%d\t\t%s\t\t%d\n", students[i].roll\_no, students[i].name, students[i].marks);  
 }  
   
 printf("\n\n");  
 printf("Table of students (sorted on roll numbers)\n");  
 int sorted\_roll\_no\_index[n];  
 int students\_roll\_no[n];  
 for (int i = 0; i < n; i++)  
 {  
 students\_roll\_no[i] = students[i].roll\_no;  
 }  
 sorting\_array\_with\_index(students\_roll\_no, sorted\_roll\_no\_index);  
 printf("Roll No\t\tName\t\tMarks\n");  
 for (int i = 0; i < n; i++)  
 {  
 printf("%d\t\t%s\t\t%d\n", students[sorted\_roll\_no\_index[i]].roll\_no, students[sorted\_roll\_no\_index[i]].name, students[sorted\_roll\_no\_index[i]].marks);  
 }  
 printf("\n\n");  
 printf("Table of students (sorted on marks)\n");  
 int sorted\_marks\_index[n];  
 int students\_marks[n];  
 for (int i = 0; i < n; i++)  
 {  
 students\_marks[i] = students[i].marks;  
 }  
 sorting\_array\_with\_index(students\_marks, sorted\_marks\_index);  
 printf("Roll No\t\tName\t\tMarks\n");  
 for (int i = 0; i < n; i++)  
 {  
 printf("%d\t\t%s\t\t%d\n", students[sorted\_marks\_index[i]].roll\_no, students[sorted\_marks\_index[i]].name, students[sorted\_marks\_index[i]].marks);  
 }  
 printf("\n\n");  
 return 0;  
}



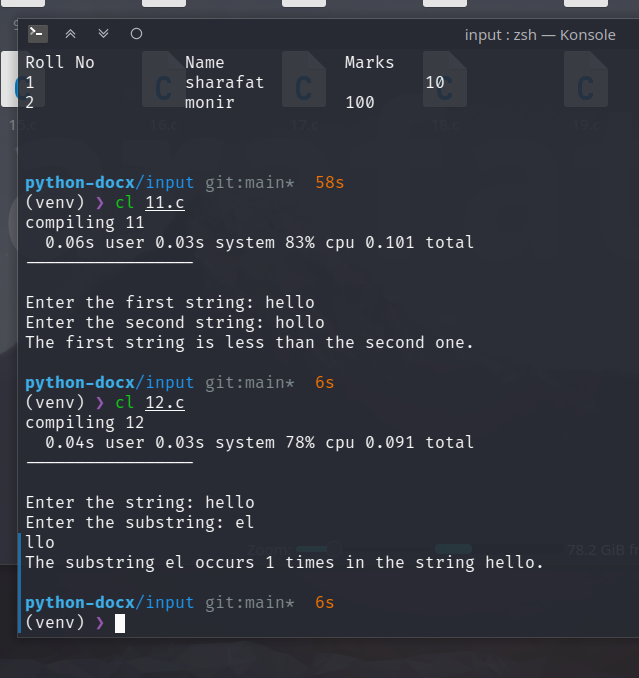
# 11 Write a program to read two strings and compare them using the function strncmp( ) and print a message that the first string is equal, less, or greater than the second one.

#include<stdio.h>  
#include<string.h>  
  
int main()  
{  
 char str1[100], str2[100];  
 printf("Enter the first string: ");  
 scanf("%s", str1);  
 printf("Enter the second string: ");  
 scanf("%s", str2);  
  
 int result = strncmp(str1, str2, 100);  
 if (result == 0)  
 {  
 printf("The first string is equal to the second one.\n");  
 }  
 else if (result < 0)  
 {  
 printf("The first string is less than the second one.\n");  
 }  
 else  
 {  
 printf("The first string is greater than the second one.\n");  
 }  
}



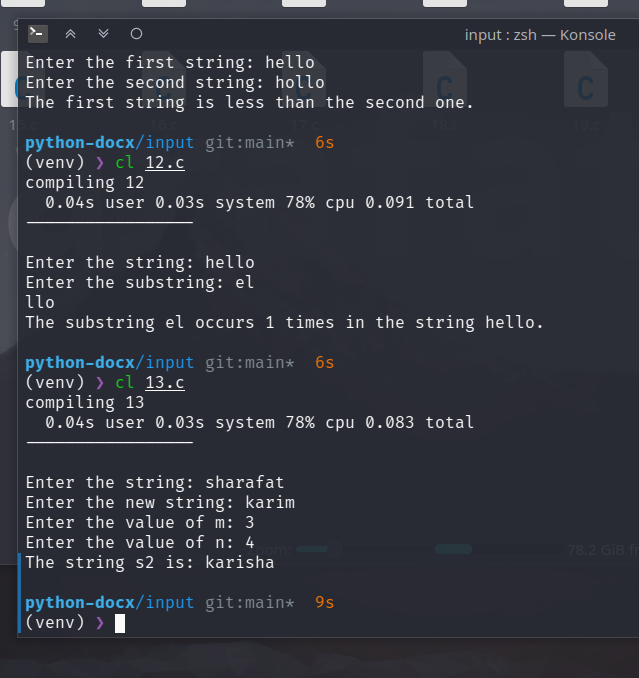
# 12 Write a program to read a line of text from the keyboard and print out the number of occurrences of a given substring using the function strstr ( ).

#include <stdio.h>  
#include <string.h>  
  
int main()  
{  
 char str[100], substr[100];  
 printf("Enter the string: ");  
 scanf("%[^\n]%\*c", str);  
 printf("Enter the substring: ");  
 scanf("%[^\n]%\*c", substr);  
  
 int count = 0;  
 char \*ptr = strstr(str, substr);  
 printf("%s\n", ptr+1);  
 while (ptr != NULL)  
 {  
 count++;  
 ptr = strstr(ptr+1, substr);  
 }  
  
 printf("The substring %s occurs %d times in the string %s.\n", substr, count, str);  
}



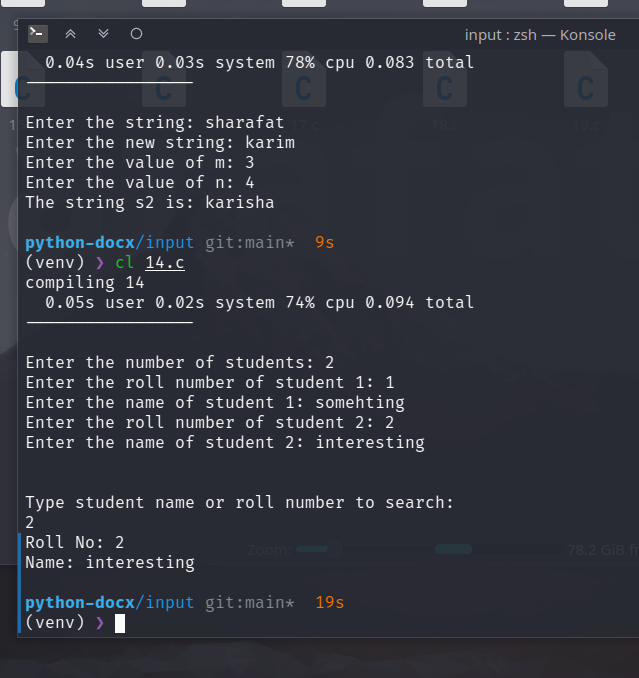
# 13 Write a program that will copy m consecutive characters from a string s1 beginning at position n into another string s2.

#include<stdio.h>  
#include<string.h>  
  
int main()  
{  
 char s1[100], s2[100];  
 int m, n;  
 printf("Enter the string: ");  
 scanf("%[^\n]%\*c", s1);  
 printf("Enter the new string: ");  
 scanf("%[^\n]%\*c", s2);  
 printf("Enter the value of m: ");  
 scanf("%d", &m);  
 printf("Enter the value of n: ");  
 scanf("%d", &n);  
  
 strncpy(s2+n, s1, m);  
 printf("The string s2 is: %s\n", s2);  
}



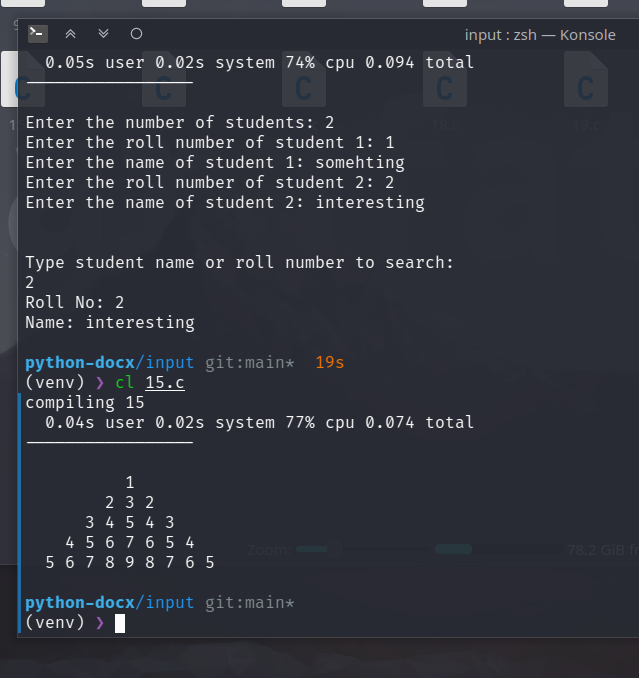
# 14 Write a program to create a directory of students with roll numbers. The program should display the roll number for a specified name and vice-versa.

#include <stdio.h>  
#include <string.h>  
#include <stdlib.h>  
  
struct student  
{  
 int roll\_no;  
 char name[50];  
};  
  
int main()  
{  
 struct student students[100];  
 int n;  
 printf("Enter the number of students: ");  
 scanf("%d", &n);  
  
 for (int i = 0; i < n; i++)  
 {  
 printf("Enter the roll number of student %d: ", i+1);  
 scanf("%d", &students[i].roll\_no);  
 printf("Enter the name of student %d: ", i+1);  
 scanf("%s", students[i].name);  
 }  
  
 printf("\n\n");  
 printf("Type student name or roll number to search: \n");  
 char search[50];  
 scanf("%s", search);  
  
 int found = 0;  
 for (int i = 0; i < n; i++)  
 {  
 if (students[i].roll\_no == atoi(search) || strcmp(students[i].name, search) == 0)  
 {  
 printf("Roll No: %d\n", students[i].roll\_no);  
 printf("Name: %s\n", students[i].name);  
 found = 1;  
 break;  
 }  
 }  
}



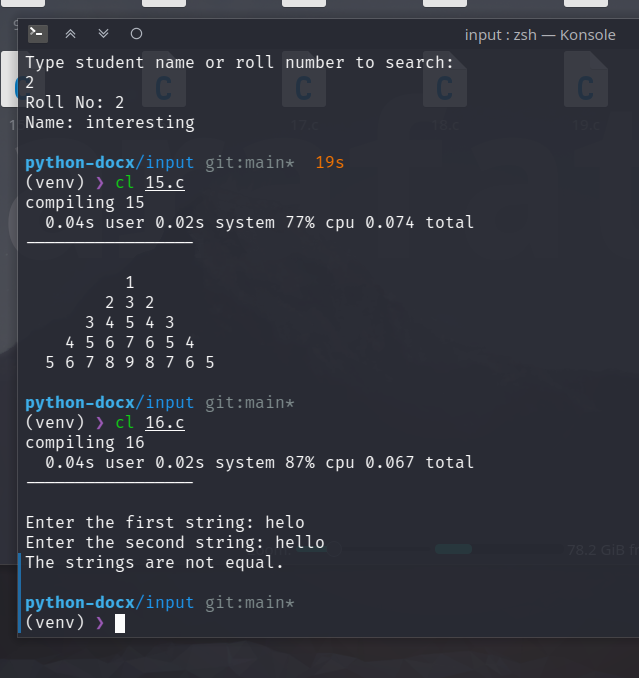
# 15 Given a string make a pyramid out of it

// Given a string  
// ```  
// char str [ ] = “123456789” ;  
// ```  
// Write a program that displays the following:  
// ```  
// 1  
// 2 3 2  
// 3 4 5 4 3  
// 4 5 6 7 6 5 4  
// 5 6 7 8 9 8 7 6 5  
// ```  
  
#include <stdio.h>  
  
int main()  
{  
 char str[] = "123456789";  
 int n = 5;  
 for (int i = 0; i < n; i++)  
 {  
 for (int j = n-i; j > 0; j--)  
 {  
 printf(" ");  
 }  
 for (int j = i+1; j < 2\*i+2; j++)  
 {  
 printf("%c ", str[j-1]);  
 }  
 for (int j = 2\*i; j > i; j--)  
 {  
 printf("%c ", str[j-1]);  
 }  
 printf("\n");  
 }  
}



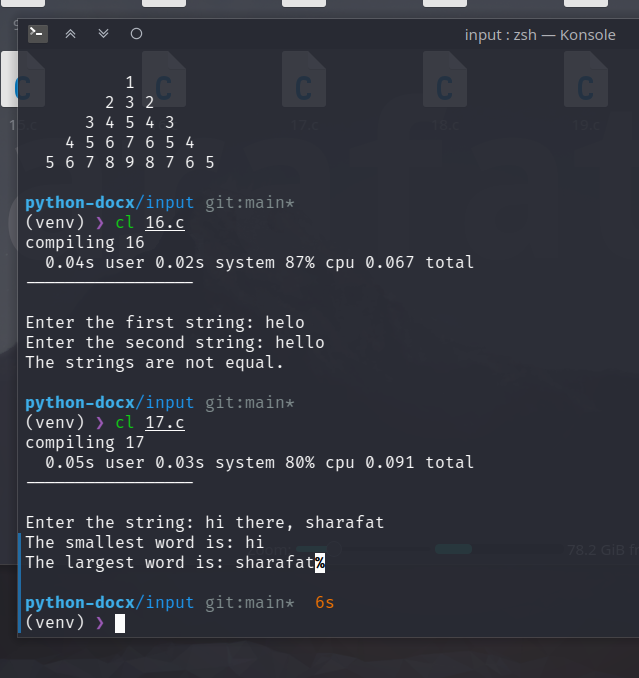
# 16 Write a C program to compare two strings without using any string function.

// Write a C program to compare two strings without using any string function.  
  
#include <stdio.h>  
  
int main()  
{  
 char str1[100], str2[100];  
 printf("Enter the first string: ");  
 scanf("%[^\n]%\*c", str1);  
 printf("Enter the second string: ");  
 scanf("%[^\n]%\*c", str2);  
  
 int i = 0;  
 while (str1[i] != '\0' && str2[i] != '\0')  
 {  
 if (str1[i] != str2[i])  
 {  
 printf("The strings are not equal.\n");  
 return 0;  
 }  
 i++;  
 }  
 if (str1[i] == '\0' && str2[i] == '\0')  
 {  
 printf("The strings are equal.\n");  
 }  
 else  
 {  
 printf("The strings are not equal.\n");  
 }  
}



# 17 Write a C program to find the largest and smallest sized word in a string.

// Write a C program to find the largest and smallest sized word in a string.  
  
#include <stdio.h>  
  
int main()  
{  
 char str[100];  
 printf("Enter the string: ");  
 scanf("%[^\n]%\*c", str);  
  
 int i = 0;  
 int min = 100, max = 0;  
 int min\_index = 0, max\_index = 0;  
 while (str[i] != '\0')  
 {  
 int count = 0;  
 while (str[i] != ' ' && str[i] != '\0')  
 {  
 count++;  
 i++;  
 }  
 if (count < min)  
 {  
 min = count;  
 min\_index = i - count;  
 }  
 if (count > max)  
 {  
 max = count;  
 max\_index = i - count;  
 }  
 if (str[i] == '\0')  
 {  
 break;  
 }  
 i++;  
 }  
  
 printf("The smallest word is: ");  
 for (int j = min\_index; j < min\_index + min; j++)  
 {  
 printf("%c", str[j]);  
 }  
 printf("\n");  
  
 printf("The largest word is: ");  
 for (int j = max\_index; j < max\_index + max; j++)  
 {  
 printf("%c", str[j]);  
 }  
}



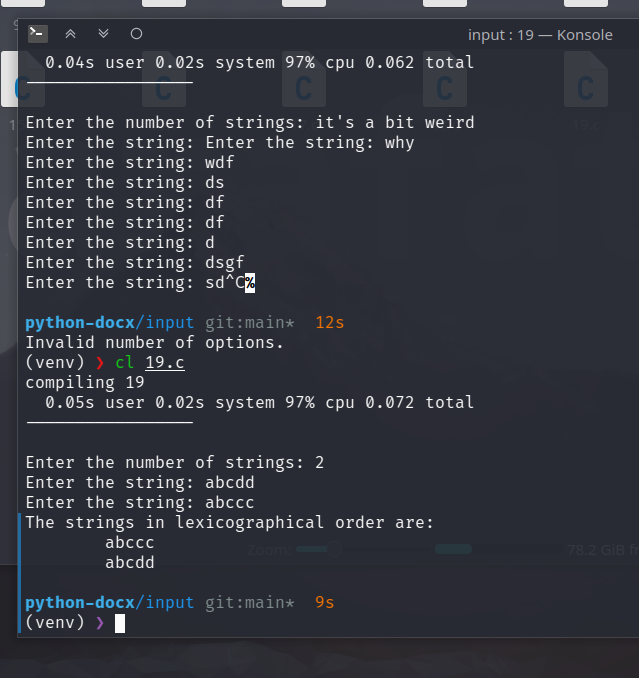
# 18 Write a C program to replace all the white spaces in a string with double white spaces.

// Write a C program to replace all the white spaces in a string with double white spaces.  
  
#include <stdio.h>  
  
int main()  
{  
 char str[100];  
 printf("Enter the string: ");  
 scanf("%[^\n]%\*c", str);  
 char white\_space\_doubled\_str[200];  
  
 int i = 0, j = 0;  
 while (str[i] != '\0')  
 {  
 if (str[i] == ' ')  
 {  
 white\_space\_doubled\_str[j] = ' ';  
 white\_space\_doubled\_str[j+1] = ' ';  
 j += 2;  
 }  
 else  
 {  
 white\_space\_doubled\_str[j] = str[i];  
 j++;  
 }  
 i++;  
 }  
  
 white\_space\_doubled\_str[j] = '\0';  
 printf("The string with double white spaces is: %s\n", white\_space\_doubled\_str);  
 return 0;  
}



# 19 Write a C program to enter multiple strings and display them in lexicographical order.

// Write a C program to enter multiple strings and display them in lexicographical order.  
  
#include <stdio.h>  
#include <string.h>  
  
int main()  
{  
 int n;  
 printf("Enter the number of strings: ");  
 scanf("%d%\*c", &n);  
 char str[n][100];  
 for (int i = 0; i < n; i++)  
 {  
 printf("Enter the string: ");  
 scanf("%[^\n]%\*c", &str[i]);  
 }  
  
 for (int i = 0; i < n; i++)  
 {  
 for (int j = i+1; j < n; j++)   
 {  
 if (strcmp(str[i], str[j]) > 0)  
 {  
 char temp[100];  
 strcpy(temp, str[i]);  
 strcpy(str[i], str[j]);  
 strcpy(str[j], temp);  
 }  
 }  
 }  
  
 printf("The strings in lexicographical order are:\n");  
 for (int i = 0; i < n; i++)  
 {  
 printf("\t%s\n", str[i]);  
 }  
}



# 20 Write a C program to concatenate two strings without using any string function.

// Write a C program to concatenate two strings without using any string function.  
  
#include <stdio.h>  
  
int main()  
{  
 char str1[100], str2[100];  
 printf("Enter the first string: ");  
 scanf("%[^\n]%\*c", str1);  
 printf("Enter the second string: ");  
 scanf("%[^\n]%\*c", str2);  
  
 int i = 0;  
 while (str1[i] != '\0')  
 {  
 i++;  
 }  
 int j = 0;  
 while (str2[j] != '\0')  
 {  
 str1[i] = str2[j];  
 i++;  
 j++;  
 }  
 str1[i] = '\0';  
 printf("The concatenated string is: %s\n", str1);  
}

