Name → Shubham Negi

Father's Name → Jagmohan Singh Negi

Course → BSC IT - 2B

Student ID → 20051097

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Type of Exam → Practical

Subject → Operating System

Q.1→

```
#include <assert.h>
#include <ctype.h>
#include <limits.h>
#include <math.h>
#include <stdbool.h>
#include <stddef.h>
#include <stdint.h>
#include <stdio.h>
#include <string.h>

Char* readline();
Char* ltrim(char*);
Char* rtrim (char*);

 int parse_int(char*);

int minimumAverage(int customers_rows
int customers_columns, int** custom
{
}
```

```
int main()
{
   FILE * fptr=
fopen(getenv("OUTPUT_PATH"),"w");

   int n = parse_int(ltrim(rtrim(readline())));

int** customers = malloc(n*sizeof(int *));

for (int i= 0; i<n; i++)
{
 * ((customers +i) = malloc (2*(sizeof(int)));

char** customers_item_temp =
   split_string (rtrim(readline()));

for (int j=0; j<2; j++)
{
   int customers_item =
parse_int(*(customers_item_temp + j));

  ((customers + i)+ j) = customers_item;
}
}
   int result = minimumAverage (n, 2,
                    customers);

   fprintf(fptr, "%d\n", result);
   fclose(fptr);
      return 0;
 }
```

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```
char* readline()
{
    size_t alloc_length = 1024;
    size_t data_length = 0;

   char* data = malloc(alloc_length);

   while (true){
     char * cursor = data+ data_length;
      Char* line = fgets(cursor, alloc_length
        - data_length, stdin);

      if (!line){
          break;
     }
      data_length += strlen(cursor);

   if(data_length < alloc_length - 1 || data
           [data length-1] = '\n'){
           break;
      }
       alloc_length <<= 1;

    data = realloc(data, alloc_length);

      if (!data){
           data = '\0';
           break;
      }
   }
      if (data [data_length - 1] = '\n'){
```

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```
    data [data_length - 1] = '\0';

    if (!data) {
        data = '\0';
    }
    else {
    data = realloc (data, data_length +1);

    if (!data) {
        data = '\0';
    }
     else {
        data[data_length] = '\0';
   }
  }

    return data;
}

  char* ltrim (char* str) {
    if (!str) {
       return '\0';
    }

     if (!* str) {
         return str;
    }

    while (* str != '\0' && isspace(*str))
   {
        str ++;
    }

      return str;
  }
```

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```
Char * rtrim (char * str)
{
    if (! str) {
        return '\0';
    }
    if (!* str) {
        return str;
    }
Char* end = str + strlen (str) - 1;
while (end >= str && isspace (*end)) {
        end --;
    }
    * (end +1) = '\0';
    return str;
}
  char ** split - string (char* str)
{
    Char ** splits = NULL;
    Char* token = strok (~~str~~ str, " ");

    int spaces = 0;
    while (token) {
    splits = realloc (splits - sizeof (char*)
  * ++ spaces);
      if (! splits) {
          return splits;
    }
      splits [spaces - 1] = token;

      token = strok (NULL, " ");
}
```

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```
    return splits;
 }
 int parse_int (char* str){
    char* endptr;
  int value = strtol(str, &endptr, 10);

 if(endptr == str || *endptr != '\0'){
       exit (EXIT_FAILURE);
 }
      return value;
 }
```