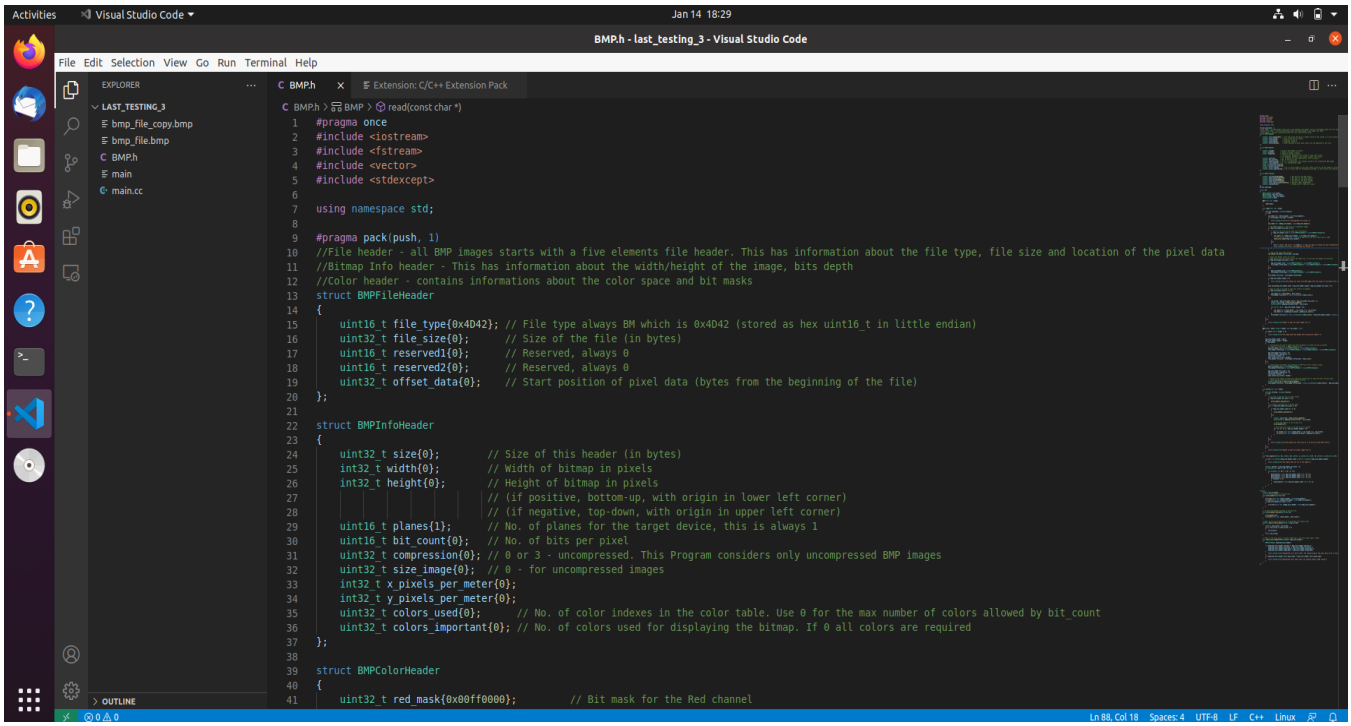
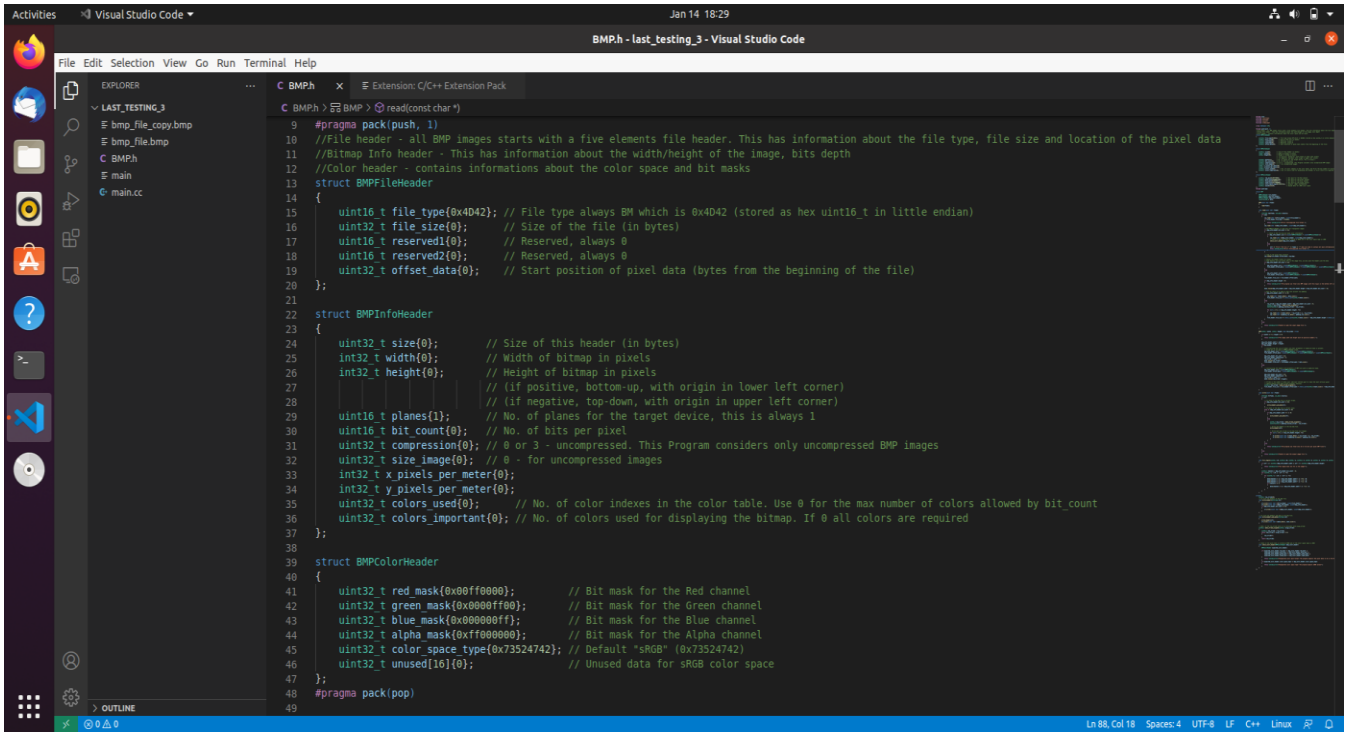
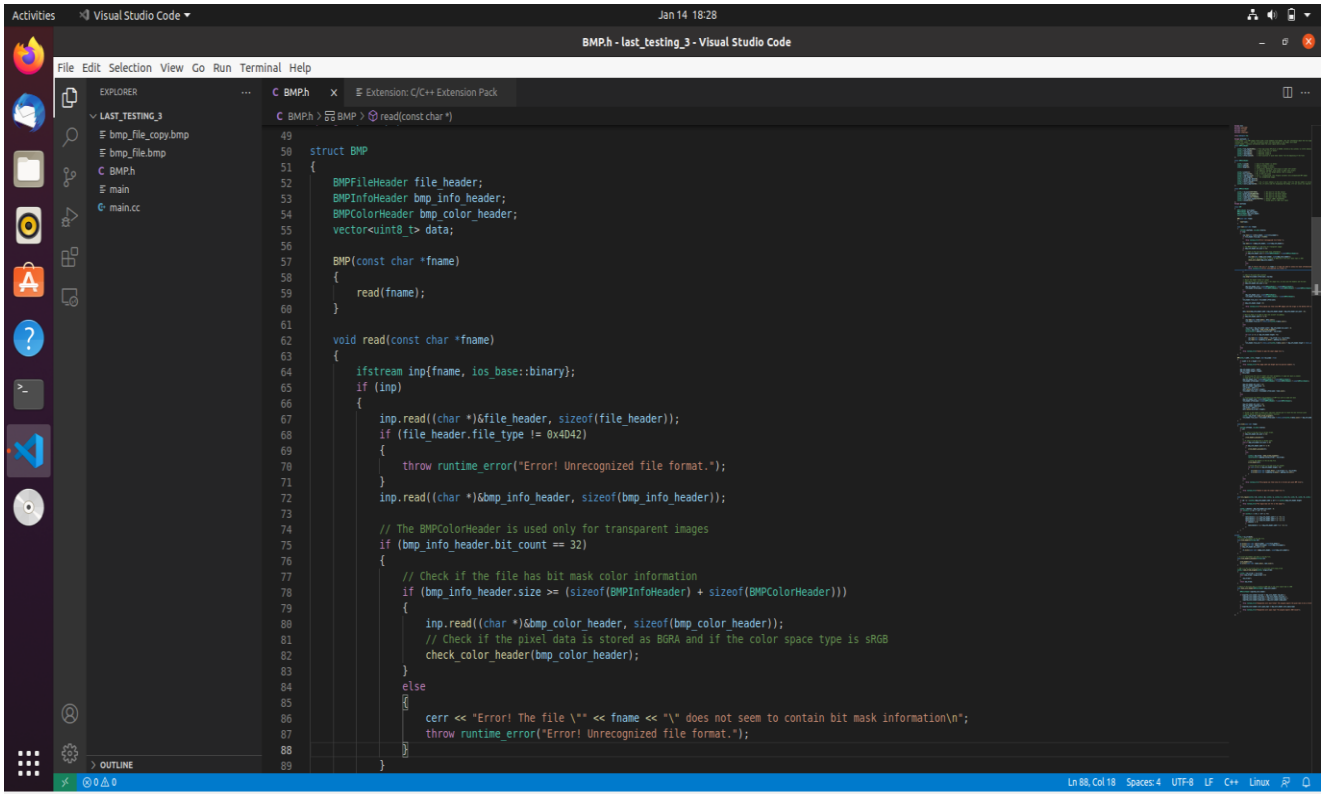
Task #3 Implement an Image File Reader and Writer

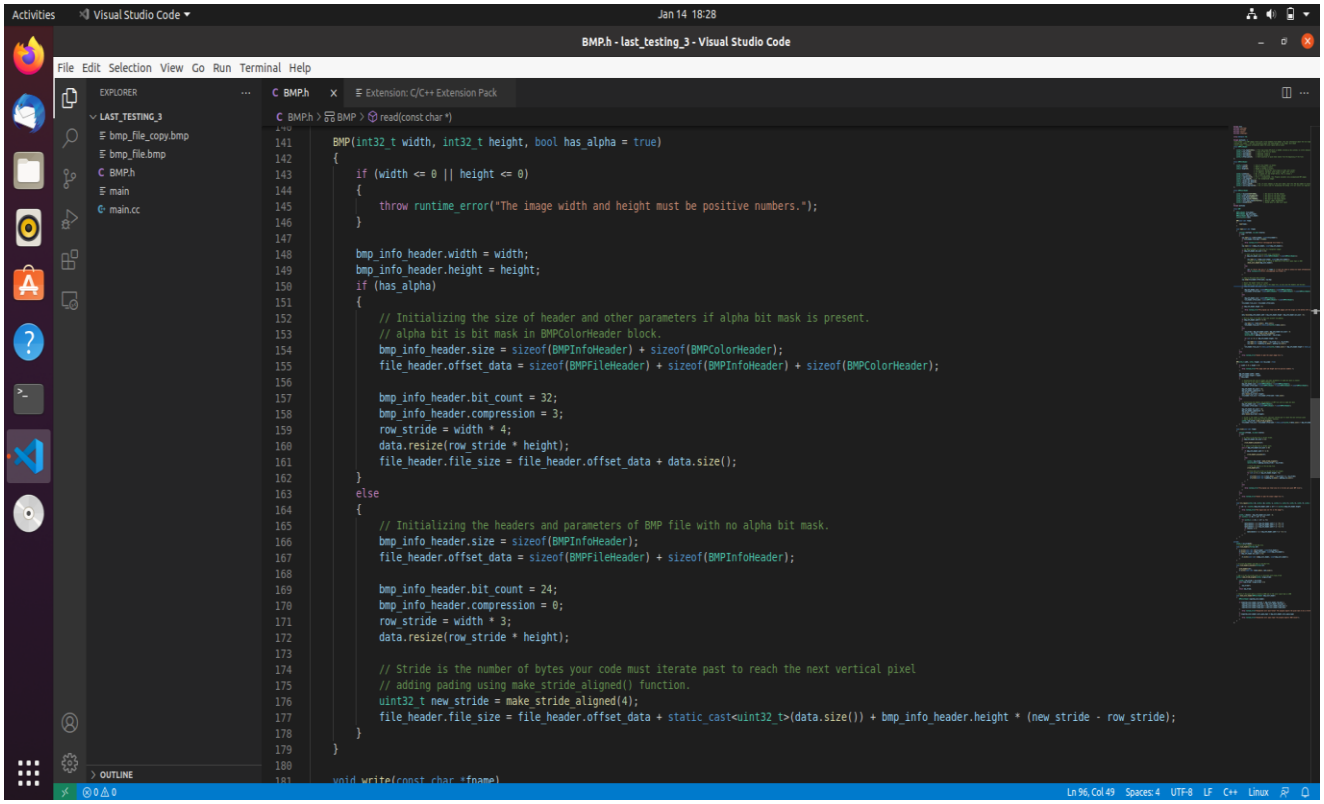
1. Structure of BMPFileHeader, BMPInfoHeader, BMPColorHeader.



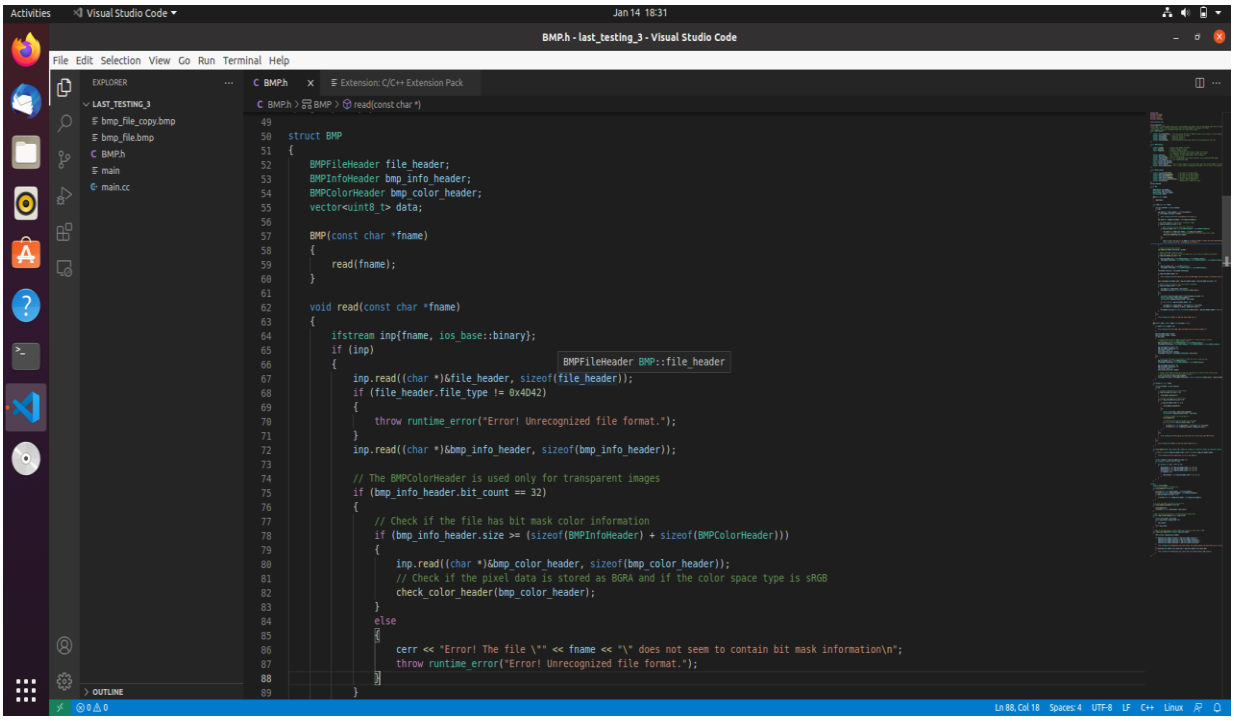


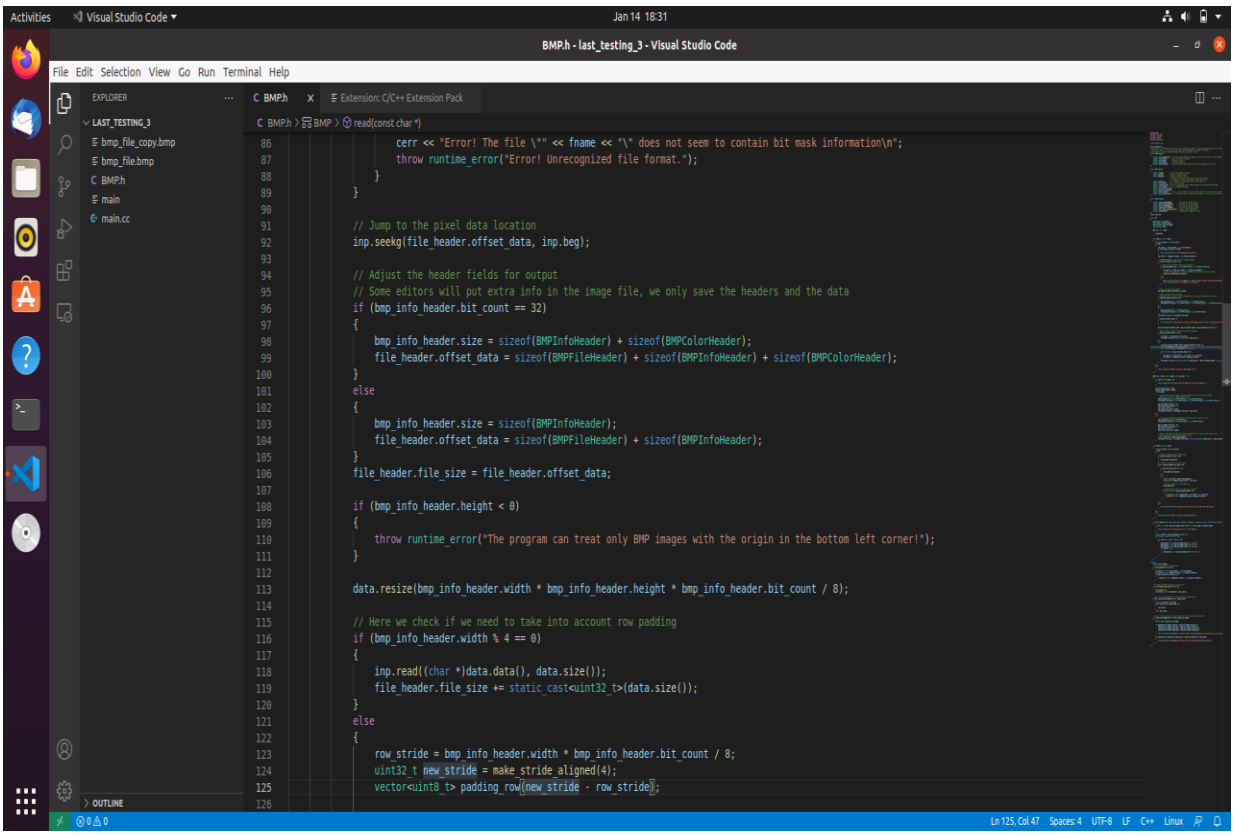
2. BMP constructor

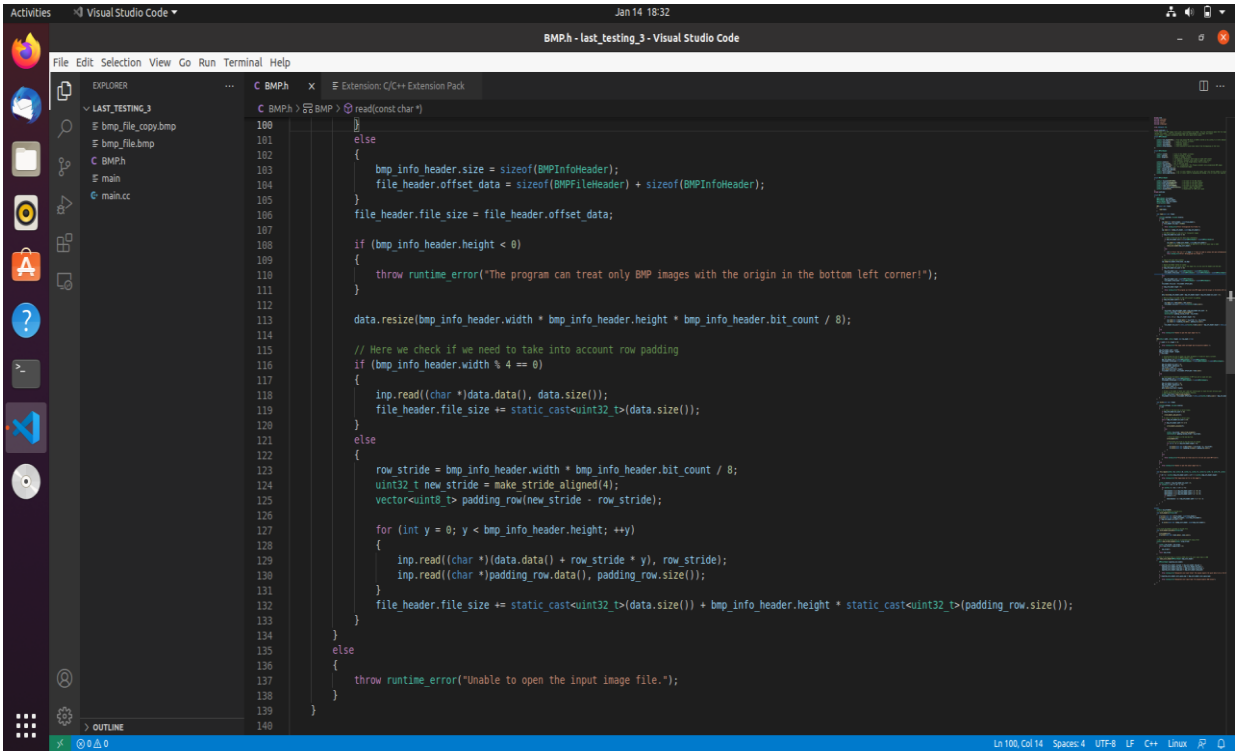




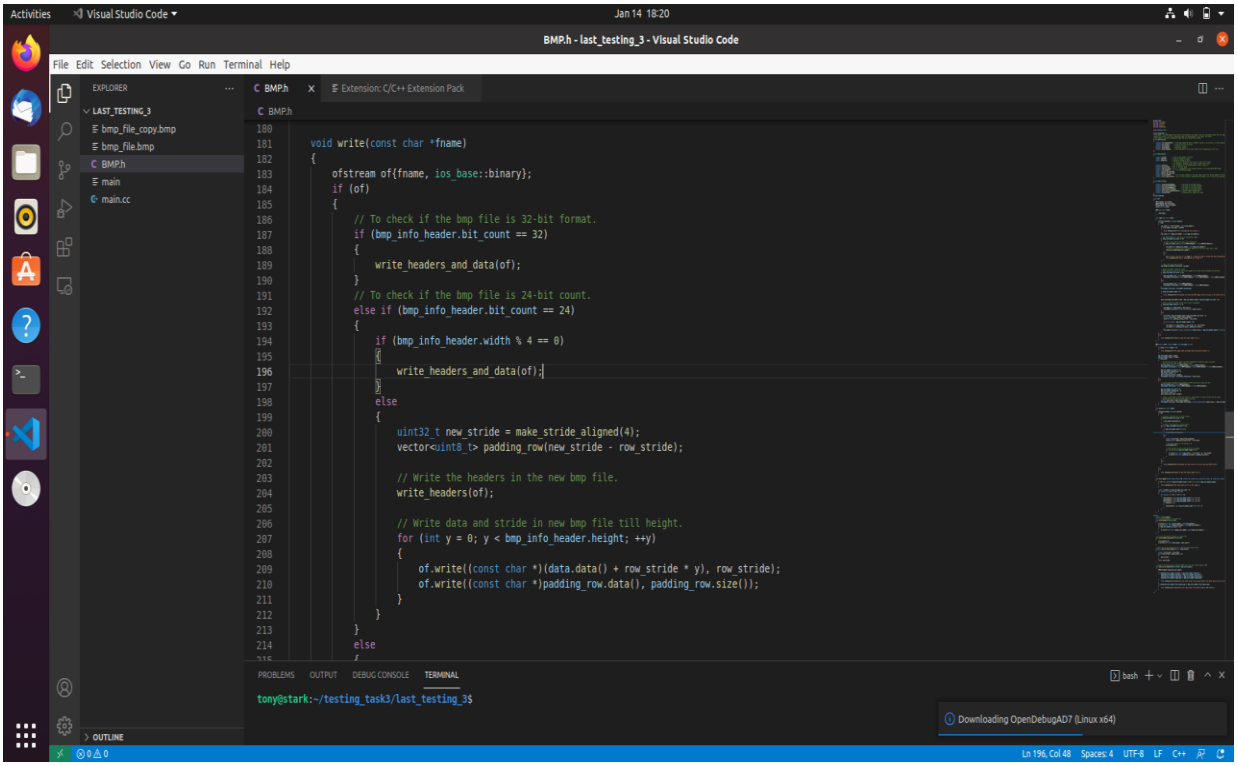
3. Function to Read Bitmap Image

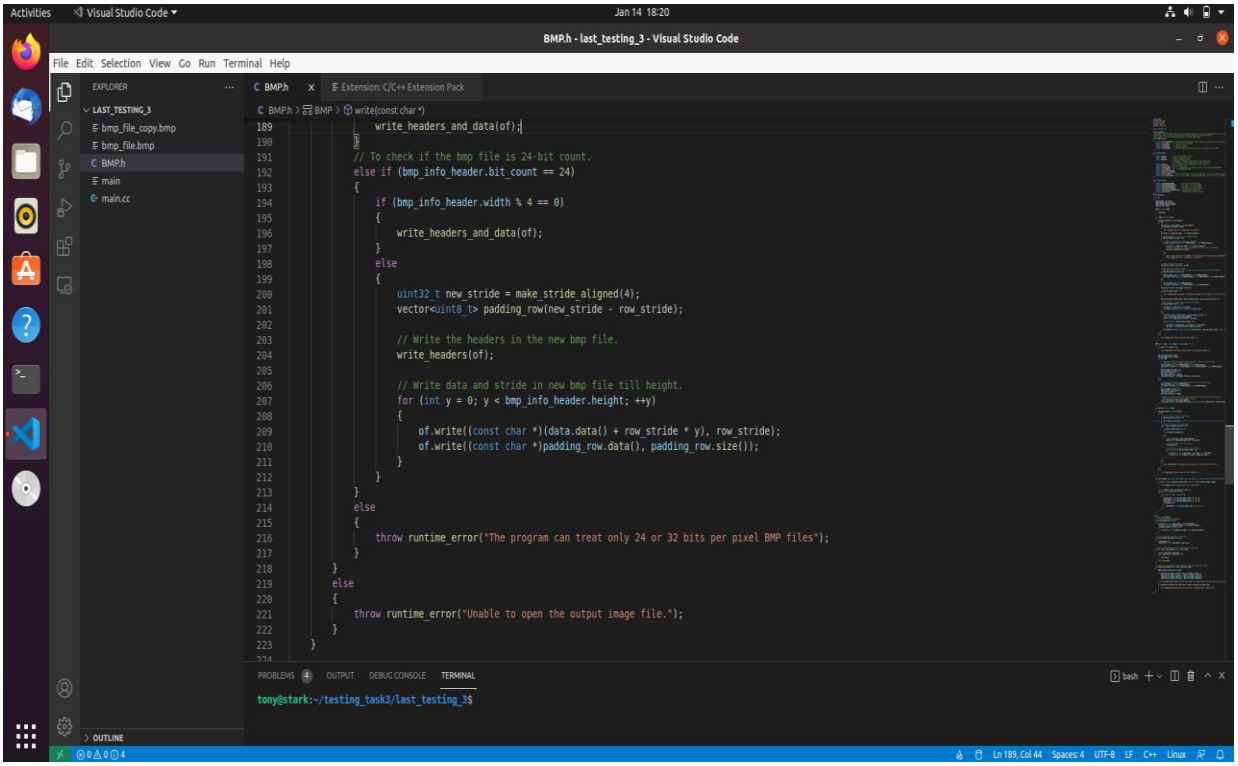


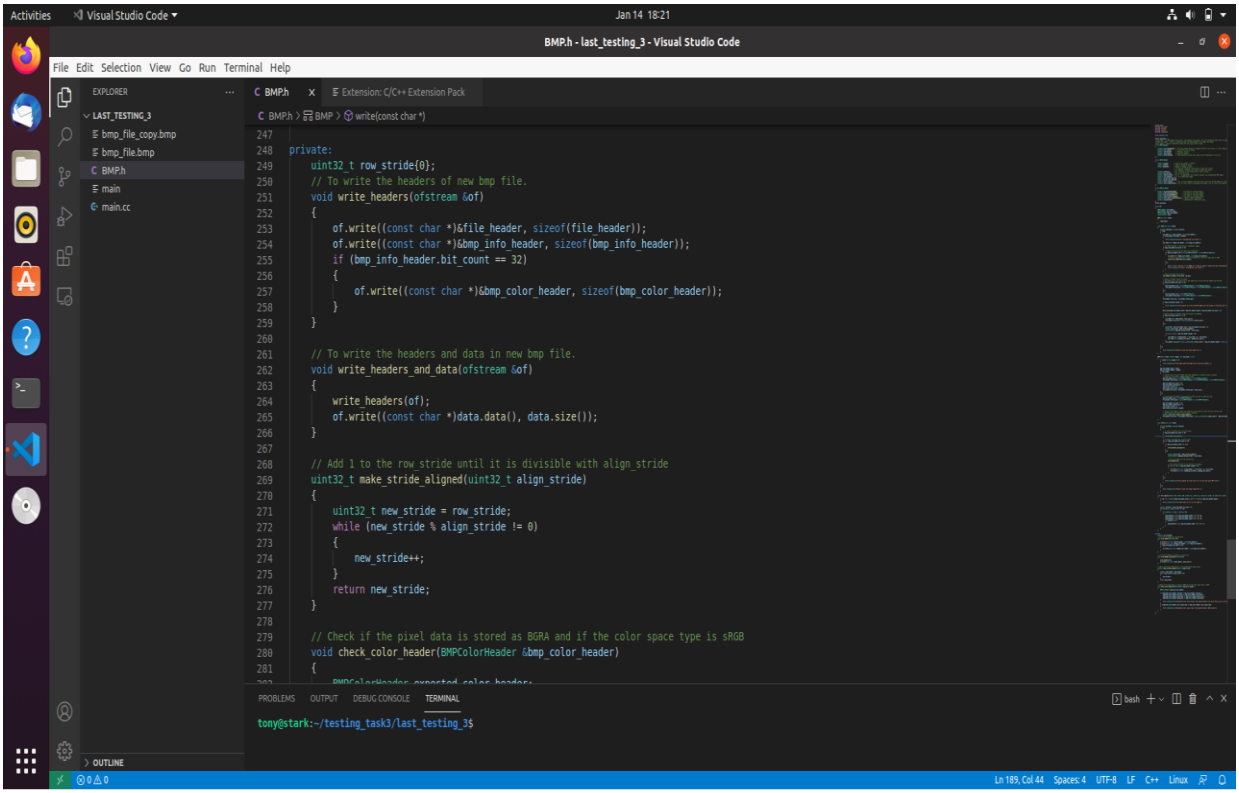


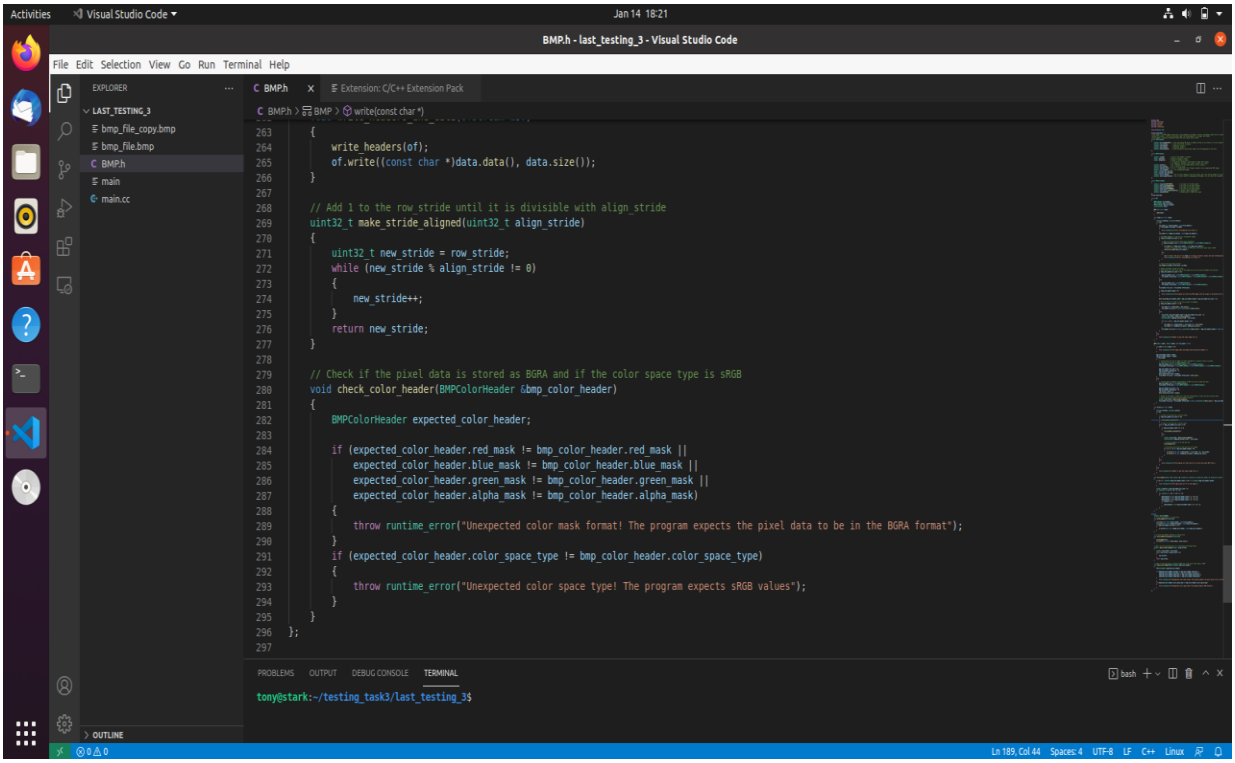


4. Function to Write Bitmap Image

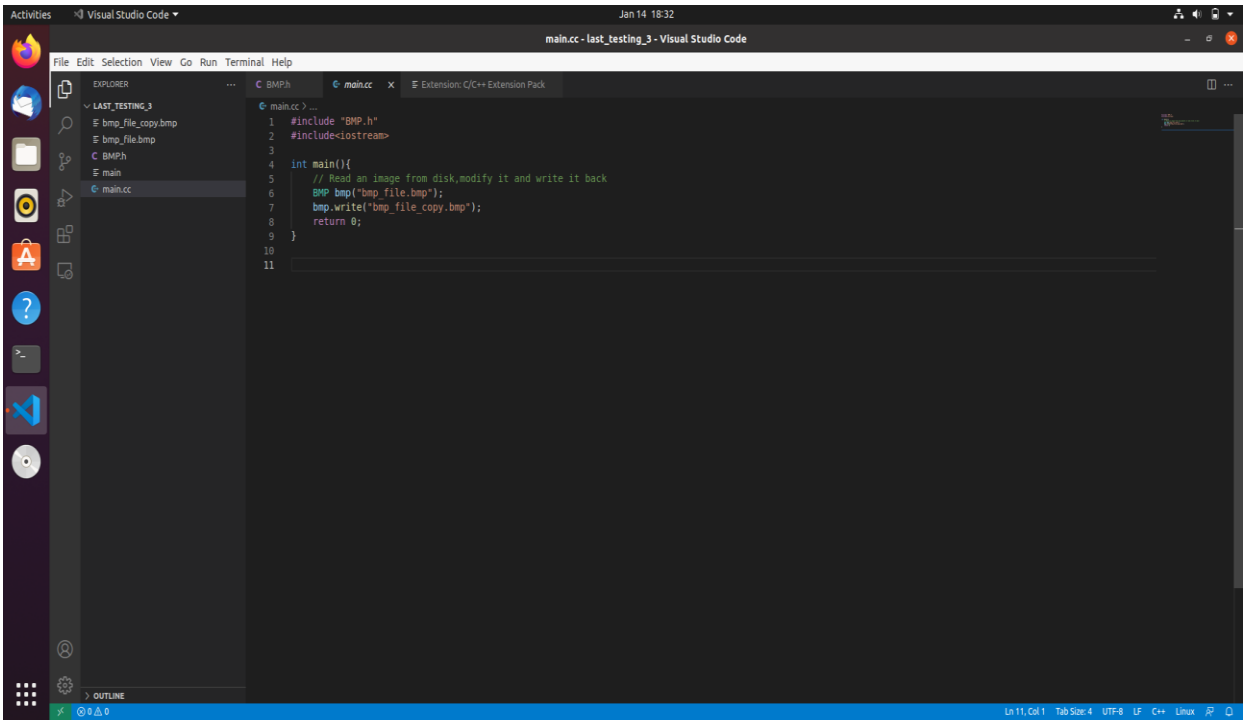



Activities
Visual Studio Code
Jan 14 18:20
BMP.h - last_testing_3 - Visual Studio Code
File Edit Selection View Go Run Terminal Help
EXPLORER
LAST_TESTING_3
bmp_file_copy.bmp
bmp_file.bmp
BMP.h
main
main.cc
BMP.h
Extension: C/C++ Extension Pack
BMP.h > BMP > write(const char *)
write_headers_and_data(of);
// To check if the bmp file is 24-bit count.
else if (bmp_info_header.bit_count == 24)
if (bmp_info_header.width % 4 == 0)
write_headers_and_data(of);
else
uint32_t new_stride = make_stride_aligned(4);
vector<uint8_t> padding_row(new_stride - row_stride);
// Write the headers in the new bmp file.
write_headers(of);
// Write data and stride in new bmp file till height.
for (int y = 0; y < bmp_info_header.height; ++y)
of.write((const char *)(data.data() + row_stride * y), row_stride);
of.write((const char *)padding_row.data(), padding_row.size());
throw runtime_error("The program can treat only 24 or 32 bits per pixel BMP files");
throw runtime_error("Unable to open the output image file.");
PROBLEMS 4
OUTPUT
DEBUG CONSOLE
TERMINAL
bash
tony@stark:~/testing_task3/last_testing_3$
OUTLINE
Ln 189, Col 44
Spaces: 4
UTF-8
LF
C++
Linux

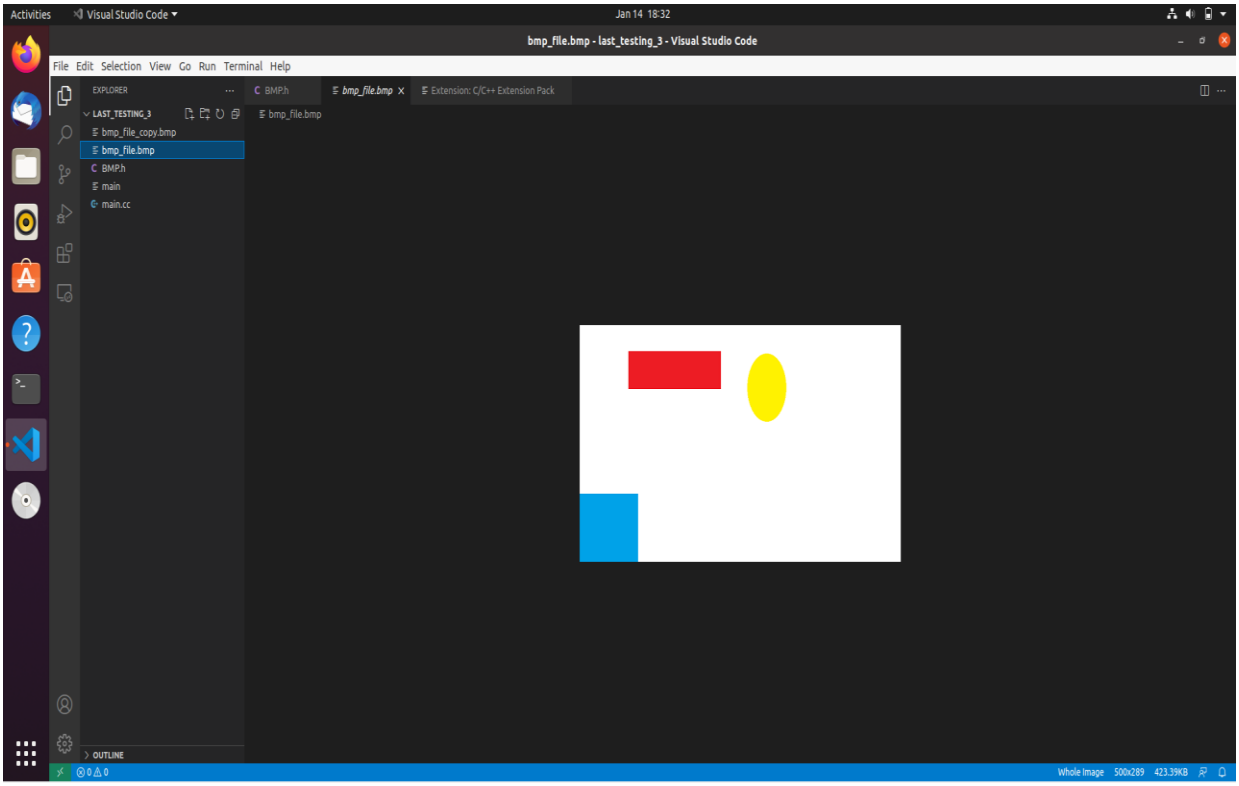

Activities
Visual Studio Code
Jan 14 18:21
BMP.h - last_testing_3 - Visual Studio Code
File Edit Selection View Go Run Terminal Help
EXPLORER
LAST_TESTING_3
bmp_file_copy.bmp
bmp_file.bmp
BMP.h
main
main.cc
BMP.h
Extension: C/C++ Extension Pack
BMP.h > BMP > write(const char *)
private:
uint32_t row_stride{0};
// To write the headers of new bmp file.
void write_headers(ofstream &of)
of.write((const char *)&file_header, sizeof(file_header));
of.write((const char *)&bmp_info_header, sizeof(bmp_info_header));
if (bmp_info_header.bit_count == 32)
of.write((const char *)&bmp_color_header, sizeof(bmp_color_header));
// To write the headers and data in new bmp file.
void write_headers_and_data(ofstream &of)
write_headers(of);
of.write((const char *)data.data(), data.size());
// Add 1 to the row_stride until it is divisible with align_stride
uint32_t make_stride_aligned(uint32_t align_stride)
uint32_t new_stride = row_stride;
while (new_stride % align_stride != 0)
new_stride++;
return new_stride;
// Check if the pixel data is stored as BGRA and if the color space type is sRGB
void check_color_header(BMPColorHeader &bmp_color_header)
PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
bash
tony@stark:~/testing_task3/last_testing_3$
OUTLINE
Ln 189, Col 44
Spaces: 4
UTF-8
LF
C++
Linux



5. Main Function



6. Input (Read) Bitmap Image



7. Output (Write) Bitmap Image