LAPORAN TUGAS AKHIR

PRAKTIKUM PEMROGRAMAN BERORIENTASI OBJEK



Nama : Naufal irfani

NIM : 47583

LABORATORIUM JARINGAN KOMPUTER DAN APLIKASI TERDISTRIBUSI

DEPARTEMEN TEKNIK ELEKTRO DAN TEKNOLOGI INFORMASI

FAKULTAS TEKNIK UNIVERSITAS GADJAH MADA

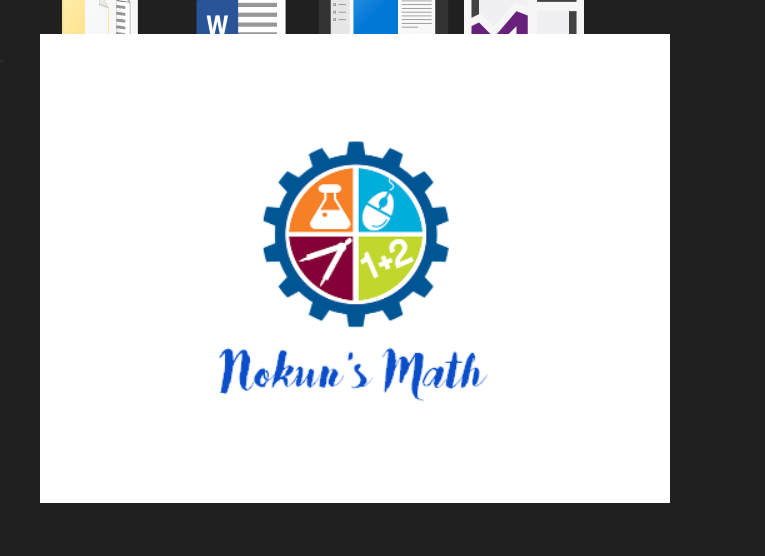
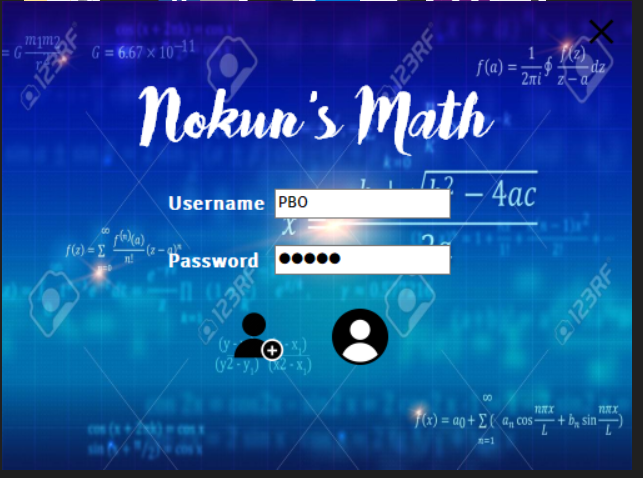
YOGYAKARTA

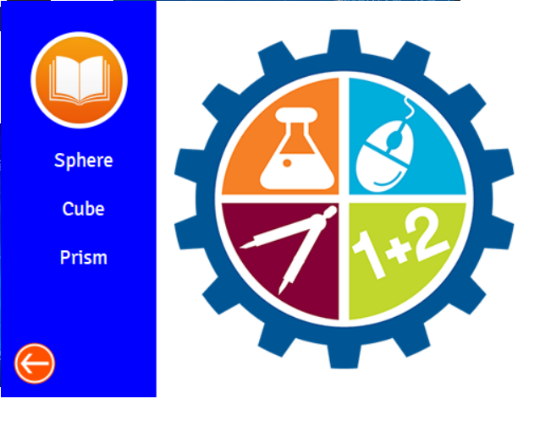
**Penjelasan aplikasi**

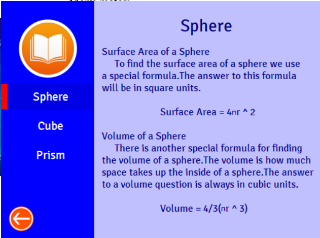
Nokun’s Math merupakan aplikasi yang berfungsi untuk menghitung volume dan luas permukaan bangun geometri 3D, menghitung dengan kalkulator, menerjemahkan kata atau kalimat, dan materi rumus-rumus untuk menghitung volume dan luas permukaan bangun geomteri 3D. Untuk dapat menggunakan aplikasi harus login terlebih dahulu.

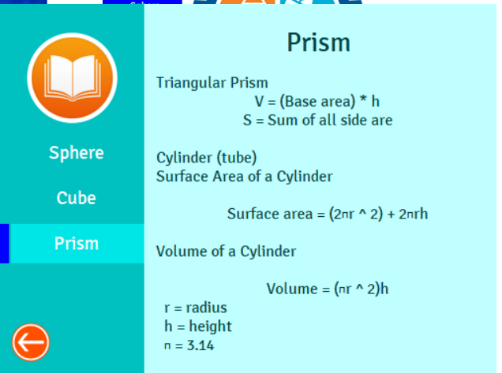
**Cara kerja aplikasi**

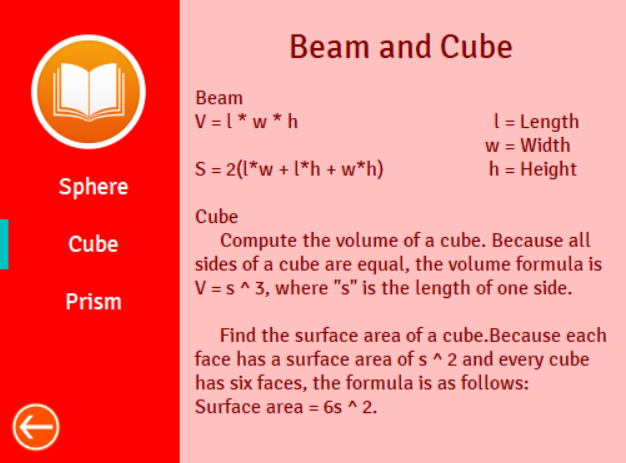
Loading Screen Menu login



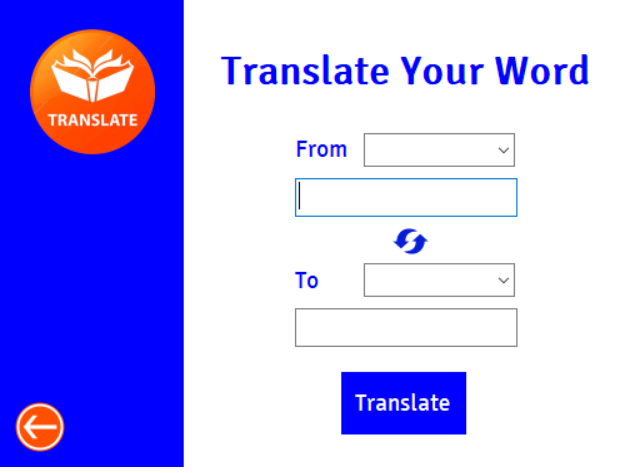
Menu utama Menu materi



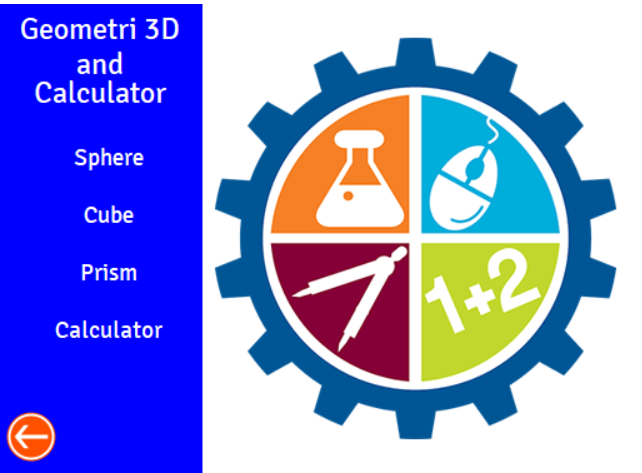
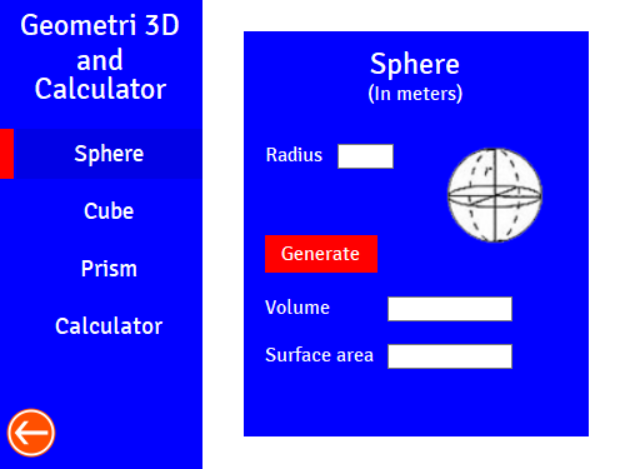
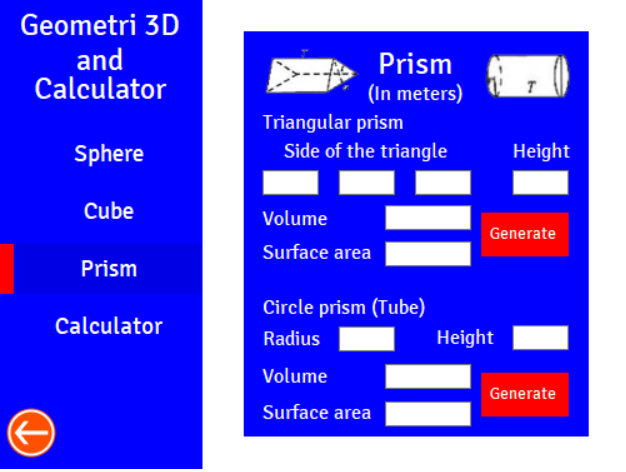
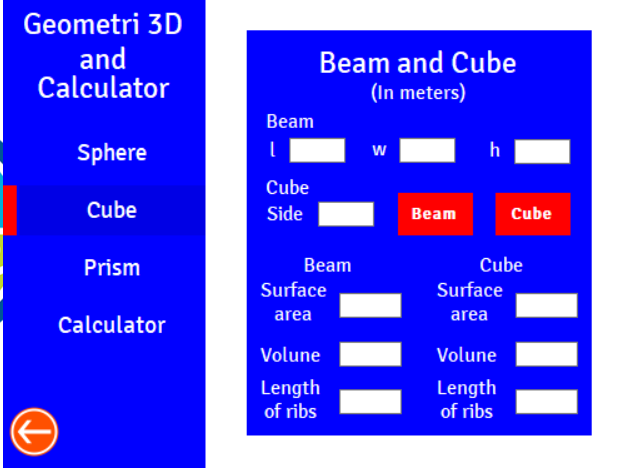


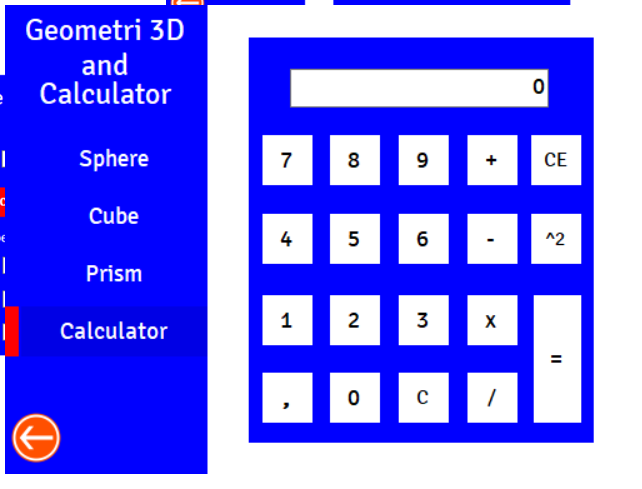


Menu Translate



Menu Menghitung





**Analisis Code**

FormLoadingScreen.cs

using System;

using System.Windows.Forms;

namespace TA\_PBO

{

public partial class FormLoadingScreen : Form

{

public FormLoadingScreen()

{

InitializeComponent();

}

Timer timer;

Method untuk memanggil timer dengan interval atau delay selama 3 detik

private void FormLoadingScreen\_Load(object sender, EventArgs e)

{

timer = new Timer();

timer.Interval = 3000;

timer.Start();

timer.Tick += timer1\_Tick;

}

Method timer untuk memanggil Form2 dan menyembunyikan FormLoadingScreen

private void timer1\_Tick(object sender, EventArgs e)

{

timer.Stop();

Form2 form2 = new Form2();

form2.Show();

this.Hide();

}

}

}

Form2.cs (Form login username dan password)

using System;

using System.Data;

using System.Windows.Forms;

using System.Data.SqlClient;

namespace TA\_PBO

{

public partial class Form2 : Form

{

public Form2()

{

InitializeComponent();

}

private void btnLogin\_Click(object sender, EventArgs e)

{

if (tbUsername.Text == string.Empty

&& tbPassword.Text == string.Empty)

{

MessageBox.Show("Please enter the username

and password", "Information", MessageBoxButtons.OK, MessageBoxIcon.Information);

}

Method btnLogin\_Click. Berisi blok if else yang intinya jika user belum menginput username dan password maka akan muncul messageBox peringatan. Jika username dan password diisi maka akan membaca data dari database, jika username dan password sesuai dengan isi database maka akan menampilkan Form3 dan menutup Form2. Jika tidak sesuai akan muncul messageBox berisi peringatan username atau password salah.

else if (tbUsername.Text == string.Empty)

{

MessageBox.Show("Please enter the username", "Information", MessageBoxButtons.OK, MessageBoxIcon.Information);

}

else if (tbPassword.Text == string.Empty)

{

MessageBox.Show("Please enter the password", "Information", MessageBoxButtons.OK, MessageBoxIcon.Information);

}

else

{

SqlConnection sqlConnection = new SqlConnection(@"Data Source=(LocalDB)\MSSQLLocalDB;AttachDbFilename=

D:\Naufal\PBO\TA\_PBO\TA\_PBO\login.mdf;

Integrated Security=True;Connect Timeout=30");

string query = "Select \* from [Login] where

username = '" + tbUsername.Text + "'and password

= '" + tbPassword.Text + "'";

SqlDataAdapter sqlDataAdapter = new SqlDataAdapter

(query, sqlConnection);

DataTable dataTable = new DataTable();

sqlDataAdapter.Fill(dataTable);

if (dataTable.Rows.Count == 1)

{

Form3 form3 = new Form3();

form3.Show();

this.Close();

}

else

{

MessageBox.Show("Incorrect username or password","Warning",MessageBoxButtons.OK,

MessageBoxIcon.Warning);

}

}

}

private void btnCreate\_Click(object sender, EventArgs e)

{

Method btnCreate\_Click. Berisi blok if else yang intinya jika user belum menginput username dan password maka akan muncul messageBox peringatan. Jika username dan password diisi maka akan menambahkan data username dan password ke database.

if (tbUsername.Text == string.Empty

&& tbPassword.Text == string.Empty)

{

MessageBox.Show("Please enter the username

and password", "Information", MessageBoxButtons.OK,

MessageBoxIcon.Information);

}

else if (tbUsername.Text == string.Empty)

{

MessageBox.Show("Please enter the username",

"Information", MessageBoxButtons.OK,

MessageBoxIcon.Information);

}

else if (tbPassword.Text == string.Empty)

{

MessageBox.Show("Please enter the password",

"Information", MessageBoxButtons.OK,

MessageBoxIcon.Information);

}

else

{

MySQL mySQL = new MySQL();

mySQL.ReadDataId();

int maxId = mySQL.max2 + 1;

mySQL.InsertData(tbUsername.Text, tbPassword.Text, maxId);

}

}

Method yang berisi perintah memanggil method mySQL.ReadData, memasukkan nilai variable mySQL.Username ke tbUsername.text dan memasukkan nilai variable mySQL.Password ke tbPassword.text.

private void Form2\_Load(object sender, EventArgs e)

{

MySQL mySQL = new MySQL();

mySQL.ReadData();

tbUsername.Text = mySQL.Username;

tbPassword.Text = mySQL.Password;

}

private void tbPassword\_KeyPress(object sender, KeyPressEventArgs e)

{

if(e.KeyChar == 13)

{

Method yang berisi perintah jika keyChar 13 ditekan maka method btnLogin akan dijalankan.

e.Handled = true;

btnLogin.PerformClick();

}

}

private void tbUsername\_KeyPress(object sender, KeyPressEventArgs e)

{

if (e.KeyChar == 13)

{

e.Handled = true;

btnLogin.PerformClick();

}

}

}

}

Form3.cs (Form menu utama)

using System;

using System.Windows.Forms;

namespace TA\_PBO

{

public partial class Form3 : Form

{

Membuat instance object dari Form4, FormTranslate, dan FormMateri

Form4 form4 = new Form4();

FormTranslate formTranslate = new FormTranslate();

FormMateri formMateri = new FormMateri();

public Form3()

{

InitializeComponent();

}

Method btnCalc\_Click yang berisi perintah menampilkan Form4

private void btnCalc\_Click(object sender, EventArgs e)

{

form4.Show();

}

private void btnExit3\_Click(object sender, EventArgs e)

Method btnExit3\_Click yang berisi perintah menutup program

{

System.Environment.Exit(1);

this.Close();

}

Method btntranslate\_Click yang berisi perintah menampilkan FormTranslate

private void btnTranslate\_Click(object sender, EventArgs e)

{

formTranslate.Show();

}

Method btnMateri\_Click yang berisi perintah menampilkan FormMateri

private void btnMateri\_Click(object sender, EventArgs e)

{

formMateri.ShowDialog();

}

}

}

FormMateri.cs

using System;

using System.Drawing;

using System.Windows.Forms;

namespace TA\_PBO

{

public partial class FormMateri : Form

{

Constructor dari FormMateri yang berisi perintah InitializeComponent, menyembunyikan pnlPenanda, dan membuat tinggi dan lokasi pnlPenanda sama dengan tinggi dan lokasi btnBola

public FormMateri()

{

InitializeComponent();

pnlPenanda.Hide();

pnlPenanda.Height = btnBola.Height;

pnlPenanda.Top = btnBola.Top;

}

private void btnBola\_Click(object sender, EventArgs e)

{

this.BackColor = Color.FromArgb(192, 192, 255);

lblTitle.ForeColor = Color.Navy;

lblKet.ForeColor = Color.Navy;

splitter1.BackColor = Color.Blue;

Perintah mengganti warna dari semua komponen FormMateri, menyembunyikan PictureBox2, menampilkan pnlPenanda yang tinggi dan lokasinya sama dengan btnBola, dan menampilkan lblKet

pictureBox1.BackColor = Color.Blue;

btnBalok.BackColor = Color.Blue;

btnPrisma.BackColor = Color.Blue;

btnBola.BackColor = Color.Blue;

btnBack.BackColor = Color.Blue;

pnlPenanda.BackColor = Color.Red;

pictureBox2.Hide();

pnlPenanda.Show();

pnlPenanda.Height = btnBola.Height;

pnlPenanda.Top = btnBola.Top;

lblKet.Show();

lblKet.Text = "Surface Area of a Sphere " +

System.Environment.NewLine +

" To find the surface area of a sphere we use" +

System.Environment.NewLine +

"a special formula.The answer to this formula " +

System.Environment.NewLine +

"will be in square units." +

System.Environment.NewLine +

System.Environment.NewLine +

Perintah mengisi lblKet.Text, mengubah lokasi lblKet, menampilkan lblTitle, dan mengisi lblTitle.Text dengan “Sphere”.

" Surface Area = 4πr ^ 2" +

System.Environment.NewLine +

System.Environment.NewLine +

"Volume of a Sphere" +

System.Environment.NewLine +

" There is another special formula for finding " +

System.Environment.NewLine +

"the volume of a sphere.The volume is how much " +

System.Environment.NewLine +

"space takes up the inside of a sphere.The answer " +

System.Environment.NewLine +

"to a volume question is always in cubic units." +

System.Environment.NewLine +

System.Environment.NewLine +

" Volume = 4/3(πr ^ 3)";

lblKet.Location = new Point(155, 70);

lblTitle.Show();

lblTitle.Text = "Sphere";

}

Method btnBack\_Click yang berisi perintah menyembunyikan FormMateri

private void btnBack\_Click(object sender, EventArgs e)

{

this.Hide();

}

private void btnBalok\_Click(object sender, EventArgs e)

{

this.BackColor = Color.FromArgb(255, 192, 192);

lblKet.ForeColor = Color.Maroon;

Perintah mengganti warna dari semua komponen FormMateri dan menyembunyikan PictureBox2,

lblTitle.ForeColor = Color.Maroon;

splitter1.BackColor = Color.Red;

pictureBox1.BackColor = Color.Red;

btnBola.BackColor = Color.Red;

btnBalok.BackColor = Color.Red;

btnPrisma.BackColor = Color.Red;

pnlPenanda.BackColor = Color.FromArgb(0, 192, 192);

btnBack.BackColor = Color.Red;

pictureBox2.Hide();

pnlPenanda.Show();

pnlPenanda.Height = btnBalok.Height;

pnlPenanda.Top = btnBalok.Top;

lblTitle.Show();

lblKet.Show();

lblTitle.Text = "Beam and Cube";

lblKet.Text =

"Beam"+

System.Environment.NewLine +

"V = l \* w \* h l = Length"+

Perintah menampilkan pnlPenanda yang tinggi dan lokasinya sama dengan btnBalok, menampilkan lblKet, menampilkan lblTitle, mengisi lblKet.Text, dan mengisi lblTitle.Text dengan “Beam and Cube”.

System.Environment.NewLine +

" w = Width"+

System.Environment.NewLine +

"S = 2(l\*w + l\*h + w\*h) h = Height"+

System.Environment.NewLine +

System.Environment.NewLine +

"Cube" +

System.Environment.NewLine +

" Compute the volume of a cube. Because all" +

System.Environment.NewLine +

"sides of a cube are equal, the volume formula is " +

System.Environment.NewLine +

"V = s ^ 3, where \"s\" is the length of one side." +

System.Environment.NewLine +

System.Environment.NewLine +

" Find the surface area of a cube.Because each " +

System.Environment.NewLine +

"face has a surface area of s ^ 2 and every cube " +

System.Environment.NewLine +

"has six faces, the formula is as follows: " +

System.Environment.NewLine +

"Surface area = 6s ^ 2.";

}

private void btnPrisma\_Click(object sender, EventArgs e)

{

this.BackColor = Color.FromArgb(192, 255, 255);

lblTitle.ForeColor = Color.FromArgb(0, 64, 64);

Perintah mengganti warna dari semua komponen FormMateri, menyembunyikan PictureBox2, menampilkan pnlPenanda yang tinggi dan lokasinya sama dengan btnPrisma, menampilkan lblTitle, menampilkan lblKet, dan mengisi lblTitle.Text dengan “Prism”.

lblKet.ForeColor = Color.FromArgb(0, 64, 64);

splitter1.BackColor = Color.FromArgb(0, 192, 192);

btnBack.BackColor = Color.FromArgb(0, 192, 192);

btnBalok.BackColor = Color.FromArgb(0, 192, 192);

btnBola.BackColor = Color.FromArgb(0, 192, 192);

btnPrisma.BackColor = Color.FromArgb(0, 192, 192);

pictureBox1.BackColor = Color.FromArgb(0, 192, 192);

pnlPenanda.BackColor = Color.Blue;

pictureBox2.Hide();

pnlPenanda.Show();

pnlPenanda.Height = btnPrisma.Height;

pnlPenanda.Top = btnPrisma.Top;

lblTitle.Show();

lblTitle.Text = "Prism";

lblKet.Show();

lblKet.Text =

"Triangular Prism" +

System.Environment.NewLine +

" V = (Base area) \* h" +

System.Environment.NewLine +

" S = Sum of all side are" +

System.Environment.NewLine +

System.Environment.NewLine +

"Cylinder (tube)" +

System.Environment.NewLine +

"Surface Area of a Cylinder" +

System.Environment.NewLine +

Perintah mengisi lblKet.Text.

System.Environment.NewLine +

" Surface area = (2πr ^ 2) + 2πrh" +

System.Environment.NewLine + System.Environment.NewLine +

"Volume of a Cylinder" +

System.Environment.NewLine +

System.Environment.NewLine +

" Volume = (πr ^ 2)h" +

System.Environment.NewLine +

" r = radius" +

System.Environment.NewLine +

" h = height" +

System.Environment.NewLine +

" π = 3.14";

}

Perintah menyembunyikan lblKet dan lblTitle yang akan dijalankan ketika FormMateri dibuka.

private void FormMateri\_Load(object sender, EventArgs e)

{

lblKet.Hide();

lblTitle.Hide();

}

}

}

Form4.cs (Form untuk menghitung volume dan luas geometri 3D serta menggunakan kalkulator)

using System;

using System.Windows.Forms;

namespace TA\_PBO

{

public partial class Form4 : Form

{

Constructor dari Form4 yang berisi perintah InitializeComponent, menyembunyikan pnlPenanda, dan membuat tinggi dan lokasi pnlPenanda sama dengan tinggi dan lokasi btnBola

public Form4()

{

InitializeComponent();

pnlPenanda.Hide();

pnlPenanda.Height = btnBola.Height;

pnlPenanda.Top = btnBola.Top;

}

Method btnBackToMenu\_Click yang berisi perintah menyembunyikan Form4

private void btnBackToMenu\_Click(object sender, EventArgs e)

{

this.Hide();

}

private void btnCalculator\_Click(object sender, EventArgs e)

{

Perintah menyembunyikan ucBalok1, ucBall1, dan ucPrism1, menampilkan pnlPenanda yang tinggi dan lokasi nya sama dengan btnCalculator, dan menampilkan calculator1

pictureBox1.Hide();

ucBalok1.Hide();

ucBall1.Hide();

ucPrism1.Hide();

pnlPenanda.Show();

pnlPenanda.Height = btnCalculator.Height;

pnlPenanda.Top = btnCalculator.Top;

calculator1.Show();

}

private void splitContainer1\_Panel2\_Paint(object sender, PaintEventArgs e)

{

Perintah meletakkan calculator1, ucBalok1, ucPrism1, dan ucBall1 ke belakang

calculator1.SendToBack();

ucBalok1.SendToBack();

ucBall1.SendToBack();

ucPrism1.SendToBack();

}

private void btnBalok\_Click(object sender, EventArgs e)

{

Perintah menyembunyikan pictureBox1, calculator1, ucBall1, dan ucPrism1, menampilkan pnlPenanda yang tinggi dan lokasi nya sama dengan btnBalok, dan menampilkan ucBalok1.

pictureBox1.Hide();

calculator1.Hide();

ucBall1.Hide();

ucPrism1.Hide();

pnlPenanda.Show();

pnlPenanda.Height = btnBalok.Height;

pnlPenanda.Top = btnBalok.Top;

ucBalok1.Show();

}

private void btnBola\_Click(object sender, EventArgs e)

{

Perintah menyembunyikan pictureBox1, calculator1, ucBalok1, dan ucPrism1, menampilkan pnlPenanda yang tinggi dan lokasi nya sama dengan btnBola, dan menampilkan ucBall1.

pictureBox1.Hide();

ucBalok1.Hide();

calculator1.Hide();

ucPrism1.Hide();

pnlPenanda.Show();

pnlPenanda.Height = btnBola.Height;

pnlPenanda.Top = btnBola.Top;

ucBall1.Show();

}

private void btnPrisma\_Click(object sender, EventArgs e)

{

Perintah menyembunyikan pictureBox1, calculator1, ucBalok1, dan ucBall1, menampilkan pnlPenanda yang tinggi dan lokasi nya sama dengan btnPrisma, dan menampilkan ucPrism1.

pictureBox1.Hide();

calculator1.Hide();

ucBall1.Hide();

ucBalok1.Hide();

pnlPenanda.Show();

pnlPenanda.Height = btnPrisma.Height;

pnlPenanda.Top = btnPrisma.Top;

ucPrism1.Show();

}

}

}

FormTranslate.cs (Form untuk menerjemahkan kata atau kalimat)

using System;

using System.Windows.Forms;

using DarrenLee.Translator;

using System.Speech.Synthesis;

namespace TA\_PBO

{

public partial class FormTranslate : Form

{

public string fromLang;

public string toLang;

public string temp, temp2;

public FormTranslate()

{

InitializeComponent();

}

private void cbFrom\_SelectedIndexChanged(object sender, EventArgs e)

{

Blok if else, yang berfungsi untuk mengisi variable fromLang sesuai dengan cbFrom yang dipilih.

if (cbFrom.SelectedIndex == 0)

{

fromLang = "ar";

}

else if (cbFrom.SelectedIndex == 1)

{

fromLang = "de";

}

if (cbFrom.SelectedIndex == 2)

{

fromLang = "en";

}

else if (cbFrom.SelectedIndex == 3)

{

fromLang = "fr";

}

if (cbFrom.SelectedIndex == 4)

{

fromLang = "nl";

}

else if (cbFrom.SelectedIndex == 5)

{

fromLang = "hu";

}

if (cbFrom.SelectedIndex == 6)

{

fromLang = "id";

}

else if (cbFrom.SelectedIndex == 7)

{

fromLang = "it";

}

if (cbFrom.SelectedIndex == 8)

{

fromLang = "ja";

}

else if (cbFrom.SelectedIndex == 9)

{

fromLang = "ko";

}

if (cbFrom.SelectedIndex == 10)

{

fromLang = "no";

}

else if (cbFrom.SelectedIndex == 11)

{

fromLang = "pt";

}

if (cbFrom.SelectedIndex == 12)

{

fromLang = "ro";

}

else if (cbFrom.SelectedIndex == 13)

{

fromLang = "es";

}

if (cbFrom.SelectedIndex == 14)

{

fromLang = "ru";

}

else if (cbFrom.SelectedIndex == 15)

{

fromLang = "sv";

}

if (cbFrom.SelectedIndex == 16)

{

fromLang = "th";

}

else if (cbFrom.SelectedIndex == 17)

{

fromLang = "tr";

}

else if (cbFrom.SelectedIndex == 18)

{

fromLang = "uk";

}

}

private void FormTranslate\_Load(object sender, EventArgs e)

{

btnVoice.Hide();

Perintah menyembunyikan btnVoice dan btnVoice2.

btnVoice2.Hide();

}

private void btnTranslateWord\_Click(object sender, EventArgs e)

{

if (cbFrom.Text == string.Empty | cbTo.Text == string.Empty)

Blok if else, jika cbFrom dan cbTo kosong akan muncul messageBox. Selain itu maka text dari tbFrom akan dtranslate ke Bahasa yang dipilih. Jika terjadi error maka akan muncul messageBox.

{

MessageBox.Show("Please selest the language",

"Warning", MessageBoxButtons.OK, MessageBoxIcon.Warning);

}

else

{

try

{

string text = Translator.Translate(tbFrom.Text,

fromLang, toLang);

tbTo.Text = text;

}

catch

{

MessageBox.Show("Let's try with another word",

"Warning", MessageBoxButtons.OK, MessageBoxIcon.Warning);

}

}

if(cbFrom.Text == "English")

{

btnVoice.Show();

}

Blok if else, jika cbFrom atau cbTo sama dengan “English” maka akan memuncul btnVoice atau btnVoice2. Selain itu maka akan menyembunyikan btnVoice dan btnVoice2.

else if(cbTo.Text == "English")

{

btnVoice2.Show();

}

else

{

btnVoice.Hide();

btnVoice2.Hide();

}

}

private void cbTo\_SelectedIndexChanged(object sender, EventArgs e)

{

if (cbTo.SelectedIndex == 0)

Blok if else, yang berfungsi untuk mengisi variable toLang sesuai dengan cbTo yang dipilih.

{

toLang = "ar";

}

else if (cbTo.SelectedIndex == 1)

{

toLang = "de";

}

if (cbTo.SelectedIndex == 2)

{

toLang = "en";

}

else if (cbTo.SelectedIndex == 3)

{

toLang = "fr";

}

if (cbTo.SelectedIndex == 4)

{

toLang = "nl";

}

else if (cbTo.SelectedIndex == 5)

{

toLang = "hu";

}

if (cbTo.SelectedIndex == 6)

{

toLang = "id";

}

else if (cbTo.SelectedIndex == 7)

{

toLang = "it";

}

if (cbTo.SelectedIndex == 8)

{

toLang = "ja";

}

else if (cbTo.SelectedIndex == 9)

{

toLang = "ko";

}

if (cbTo.SelectedIndex == 10)

{

toLang = "no";

}

else if (cbTo.SelectedIndex == 11)

{

toLang = "pt";

}

if (cbTo.SelectedIndex == 12)

{

toLang = "ro";

}

else if (cbTo.SelectedIndex == 13)

{

toLang = "es";

}

if (cbTo.SelectedIndex == 14)

{

toLang = "ru";

}

else if (cbTo.SelectedIndex == 15)

{

toLang = "sv";

}

if (cbTo.SelectedIndex == 16)

{

toLang = "th";

}

else if (cbTo.SelectedIndex == 17)

{

toLang = "tr";

}

else if (cbTo.SelectedIndex == 18)

{

toLang = "uk";

}

}

private void btnBack\_Click(object sender, EventArgs e)

{

Perintah menyembunyikan FormTranslate

this.Hide();

}

private void cbTo\_KeyPress(object sender, KeyPressEventArgs e)

{

if(e.KeyChar == 13)

Jika keyChar 13 ditekan maka btnTranslateWord dijalankan.

{

e.Handled = true;

btnTranslateWord.PerformClick();

}

}

SpeechSynthesizer Synthesizer = new SpeechSynthesizer();

private void btnVoice\_Click(object sender, EventArgs e)

Method btnVoice\_Click, berisi perintah untuk membaca tbFrom.text. Perintah dijalankan jika tbFrom.Text terisi.

{bFrom

if(tbFrom.Text != string.Empty)

{

Synthesizer.Dispose();

Synthesizer = new SpeechSynthesizer();

Synthesizer.SpeakAsync(tbFrom.Text);

}

}

private void btnVoice2\_Click(object sender, EventArgs e)

{

Method btnVoice2\_Click, berisi perintah untuk membaca tbTo.text. Perintah dijalankan jika tbTo.Text terisi.

if (tbTo.Text != string.Empty)

{

Synthesizer.Dispose();

Synthesizer = new SpeechSynthesizer();

Synthesizer.SpeakAsync(tbTo.Text);

}

}

private void tbTo\_Click(object sender, EventArgs e)

{

Perintah untuk mereset tbTo dan menyembunyikan btnVoice2.

tbTo.Clear();

btnVoice2.Hide();

}

private void tbFrom\_Click(object sender, EventArgs e)

{

Perintah untuk mereset tbFrom dan menyembunyikan btnVoice.

tbFrom.Clear();

btnVoice.Hide();

}

private void tbFrom\_KeyPress(object sender, KeyPressEventArgs e)

{

if (e.KeyChar == 13)

Jika keyChar 13 ditekan maka btnTranslateWord dijalankan.

{

e.Handled = true;

btnTranslateWord.PerformClick();

}

}

private void cbFrom\_KeyPress(object sender, KeyPressEventArgs e)

{

if (e.KeyChar == 13)

Jika keyChar 13 ditekan maka btnTranslateWord dijalankan.

{

e.Handled = true;

btnTranslateWord.PerformClick();

}

}

private void btnTukar\_Click(object sender, EventArgs e)

Method btnTukar\_Click Perintah untuk menukar tbFrom.text dengan tbTo.text, menukar cbFrom.Text dengan cbTo.text, dan menyembunyikan btnVoice dan btnVoice2. Perintah akan dijalankan jika tbFrom dan tbTo terisi.

{

if(tbFrom.Text != string.Empty && tbTo.Text!= string.Empty)

{

temp = tbFrom.Text;

tbFrom.Text = tbTo.Text;

tbTo.Text = temp;

temp2 = cbFrom.Text;

cbFrom.Text = cbTo.Text;

cbTo.Text = temp2;

btnVoice.Hide();

btnVoice2.Hide();

}

}

}

}

MySQL.cs

using System;

using System.Collections.Generic;

using System.Data;

using System.Data.SqlClient;

using System.Linq;

using System.Windows.Forms;

namespace TA\_PBO

{

public class MySQL : IAkun

{

public string username1, password1;

public int max = 0, max2 = 0;

public string Username

{

get

{

return username1;

}

}

Pendefinisian property IAkun

public string Password

{

get

{

return password1;

}

}

public void InsertData(string username, string password, int id)

{

SqlConnection sqlConnection = new SqlConnection(@"Data Source=(LocalDB)\MSSQLLocalDB;AttachDbFilename=D:

\Naufal\PBO\TA\_PBO\TA\_PBO\login.mdf;Integrated

Security=True;Connect Timeout=30");

string query = "Select \* from [Login] where

username = '" + username + "'";

SqlDataAdapter sqlDataAdapter = new SqlDataAdapter

(query, sqlConnection);

DataTable dataTable = new DataTable();

sqlDataAdapter.Fill(dataTable);

if (dataTable.Rows.Count > 0)

{

MessageBox.Show("Username is already use!");

}

else

{

try

{

string commString = "INSERT INTO [Login]

(username, password, Id) VALUES (@val1, @val2, @val3)";

string conString = @"Data Source = (LocalDB)\MSSQLLocalDB;AttachDbFilename=D:

\Naufal\PBO\TA\_PBO\TA\_PBO\login.mdf;Integrated

Security=True;Connect Timeout=30";

using (SqlConnection conn = new SqlConnection(conString))

{

using (SqlCommand comm = new SqlCommand())

{

comm.Connection = conn;

comm.CommandText = commString;

comm.Parameters.AddWithValue("@val1", username);

comm.Parameters.AddWithValue("@val2", password);

comm.Parameters.AddWithValue("@val3", id);

conn.Open();

comm.ExecuteNonQuery();

}

}

MessageBox.Show("Sucessfully create an account!","Information",MessageBoxButtons.OK,

MessageBoxIcon.Information);

}

catch

{

MessageBox.Show("Can't create an account,

please contact our developer","Error",

MessageBoxButtons.OK,MessageBoxIcon.Error);

}

}

}

public void ReadData()

{

// declare the SqlDataReader, which is used in

// both the try block and the finally block

SqlDataReader sqlDataReader = null;

// create a connection object

SqlConnection sqlConnection = new SqlConnection(@"Data

Source=(LocalDB)\MSSQLLocalDB;AttachDbFilename=D:

\Naufal\PBO\TA\_PBO\TA\_PBO\login.mdf;Integrated

Security=True;Connect Timeout=30");

// create a command object

SqlCommand sqlCommand = new SqlCommand("select \* from

[Login] ", sqlConnection);

Method ReadData yang merisi perintah untuk membaca data dari database dengan menggunakan sql connection. Id yang terbesar dimasukkan ke variable max2, username dimasukkan ke username1, dan password dimasukkan ke password1dari class MySQL.

try

{

// open the connection

sqlConnection.Open();

// 1. get an instance of the SqlDataReader

sqlDataReader = sqlCommand.ExecuteReader();

do

{

while (sqlDataReader.Read())

{

// get the results of each column

int sesudah = (int)sqlDataReader["Id"];

if (sesudah >= this.max)

{

this.username1 = (string)sqlDataReader["username"];

this.password1 = (string)sqlDataReader["password"];

this.max = sesudah;

}

}

}

while (sqlDataReader.NextResult());

}

finally

{

// 3. close the reader

if (sqlDataReader != null)

{

sqlDataReader.Close();

}

// close the connection

if (sqlConnection != null)

{

sqlConnection.Close();

}

}

}

public void ReadDataId()

{

SqlDataReader sqlDataReader = null;

SqlConnection sqlConnection = new SqlConnection(@"Data

Source=(LocalDB)\MSSQLLocalDB;AttachDbFilename=D:

\Naufal\PBO\TA\_PBO\TA\_PBO\login.mdf;Integrated

Security=True;Connect Timeout=30");

SqlCommand sqlCommand = new SqlCommand("select \* from

[Login] ", sqlConnection);

try

{

sqlConnection.Open();

sqlDataReader = sqlCommand.ExecuteReader();

Method ReadDataId yang merisi perintah untuk membaca data Id dari database dengan menggunakan sql connection. Id yang terbesar kemudian dimasukkan ke variable max2 dari class MySQL.

do

{

while (sqlDataReader.Read())

{

int sesudah2 = (int)sqlDataReader["Id"];

if (sesudah2 >= this.max2)

{

this.max2 = sesudah2;

}

}

}

while (sqlDataReader.NextResult());

}

finally

{

if (sqlDataReader != null)

{

sqlDataReader.Close();

}

if (sqlConnection != null)

{

sqlConnection.Close();

}

}

}

}

}

IAkun.cs (Interface dengan nama IAkun)

using System;

namespace TA\_PBO

{

interface IAkun

{

Property Username dan Password.

string Username { get; }

string Password { get; }

}

}

ucBall.cs

using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Drawing;

using System.Data;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.Windows.Forms;

namespace TA\_PBO

{

public partial class ucBall : UserControl

{

public ucBall()

{

InitializeComponent();

}

private void btnHitung\_Click(object sender, EventArgs e)

{

if(tbRadius.Text == string.Empty)

{

MessageBox.Show("Radius is empty", "Warning",

MessageBoxButtons.OK, MessageBoxIcon.Warning);

}

else

{

try

{

double phi = 3.14000000000;

double radius = Convert.ToDouble(tbRadius.Text);

double volumeBall = 4.000000000000 / 3.000000000000

\* phi \* (Math.Pow(radius, 3));

volumeBall = Math.Round(volumeBall, 1);

tbVolume.Text = Convert.ToString(volumeBall);

double luasPermukaan = 4.0000000000000 \* phi \* (Math.Pow(radius, 2));

luasPermukaan = Math.Round(luasPermukaan, 1);

tbSurface.Text = Convert.ToString(luasPermukaan);

}

catch

{

MessageBox.Show("Please enter a number!", "Warning",

MessageBoxButtons.OK, MessageBoxIcon.Warning);

}

}

}

}

}

User control ucBall yang berfungsi untuk menghitung volume dan luas permukaan bola dengan masukan jari-jari dari bola. Perintah untuk menghitung volume dan luas permukaan akan dijalankan jika textbox jari-jari diisi dengsn angka.

ucBalok.cs

using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Drawing;

using System.Data;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.Windows.Forms;

namespace TA\_PBO

{

public partial class ucBalok : UserControl

{

public ucBalok()

{

InitializeComponent();

}

private void btnBalok\_Click(object sender, EventArgs e)

{

if (tbPanjang.Text == string.Empty |

tbLebar.Text == string.Empty | tbTinggi.Text == string.Empty)

{

MessageBox.Show("Length, Width, or Height is empty", "Warning",

MessageBoxButtons.OK, MessageBoxIcon.Warning);

}

else

{

try

{

double p = Convert.ToDouble(tbPanjang.Text);

double l = Convert.ToDouble(tbLebar.Text);

double t = Convert.ToDouble(tbTinggi.Text);

double lPermukaan = 2 \* (p \* l) + 2 \* (p \* t) + 2 \* (l \* t);

tbLPBalok.Text = Convert.ToString(lPermukaan);

double volume = p \* l \* t;

tbVBalok.Text = Convert.ToString(volume);

double pRusuk = 4 \* (p + l + t);

tbPRBalok.Text = Convert.ToString(pRusuk);

}

catch

{

MessageBox.Show("Please enter a number", "Warning",

MessageBoxButtons.OK, MessageBoxIcon.Warning);

}

}

}

private void btnKubus\_Click(object sender, EventArgs e)

{

if (tbSisi.Text == string.Empty)

{

MessageBox.Show("Side length is empty", "Warning",

MessageBoxButtons.OK, MessageBoxIcon.Warning);

}

else

{

try

{

double s = Convert.ToDouble(tbSisi.Text);

double luasPermukaan = 6 \* (s \* s);

tbLPKubus.Text = Convert.ToString(luasPermukaan);

double volumeKubus = s \* s \* s;

tbVKubus.Text = Convert.ToString(volumeKubus);

double panjangRusuk = 12 \* s;

tbPRKubus.Text = Convert.ToString(panjangRusuk);

}

catch

{

MessageBox.Show("Please enter a number", "Warning",

MessageBoxButtons.OK, MessageBoxIcon.Warning);

}

}

}

private void ucBalok\_Load(object sender, EventArgs e)

{

}

}

}

User control ucBalok, berfungsi untuk menghitung volume dan luas permukaan dari balok dan kubus. Perintah untuk menghitung volume dan luas permukaan akan dijalankan jika masing-masing komponen yang dibutuhkan telah diisi dan harus diisi dengsn angka.

ucPrism.cs

using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Drawing;

using System.Data;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.Windows.Forms;

namespace TA\_PBO

{

public partial class ucPrism : UserControl

{

double a, b, c;

public ucPrism()

{

InitializeComponent();

}

private void btnTabung\_Click(object sender, EventArgs e)

{

if (tbRadius.Text == string.Empty)

{

MessageBox.Show("Radius is empty", "Warning",

MessageBoxButtons.OK, MessageBoxIcon.Warning);

}

else

{

try

{

double r = Convert.ToDouble(tbRadius.Text);

double t = Convert.ToDouble(tbHeightT.Text);

double phi = 3.14;

double volume = phi \* Math.Pow(r, 2) \* t;

volume = Math.Round(volume, 2);

tbVTabung.Text = Convert.ToString(volume);

double luasPermukaan = (2.00000 \* phi \* Math.Pow

(r, 2)) + (2.00000 \* phi \* r \* t);

luasPermukaan = Math.Round(luasPermukaan, 2);

tbSTabung.Text = Convert.ToString(luasPermukaan);

}

catch

{

MessageBox.Show("Please enter a number!", "Warning",

MessageBoxButtons.OK, MessageBoxIcon.Warning);

}

}

}

public void urutkanAngka(double A, double B, double C)

{

double temp = 0;

if (A < B)

{

temp = A;

A = B;

B = temp;

}

if (A < C)

{

temp = A;

A = C;

C = temp;

}

if (B < A)

{

temp = B;

B = A;

A = temp;

}

if (B < C)

{

temp = B;

B = C;

C = temp;

}

if (C < A)

{

temp = C;

C = A;

A = temp;

}

if (C < B)

{

temp = C;

C = B;

B = temp;

}

this.a = A;

this.b = B;

this.c = C;

}

private void btnSegitiga\_Click(object sender, EventArgs e)

{

if (tbS1.Text == string.Empty & tbS2.Text == string.Empty

& tbS3.Text == string.Empty & tbTinggi.Text == string.Empty)

{

MessageBox.Show("Length of the base side and Height is empty",

"Warning", MessageBoxButtons.OK, MessageBoxIcon.Warning);

}

else if (tbTinggi.Text == string.Empty)

{

MessageBox.Show("Height is empty", "Warning",

MessageBoxButtons.OK, MessageBoxIcon.Warning);

}

else if (tbS1.Text == string.Empty && tbS2.Text !=

string.Empty && tbS3.Text != string.Empty)

{

MessageBox.Show("Length of the base side isn't complete",

"Warning", MessageBoxButtons.OK, MessageBoxIcon.Warning);

}

else if (tbS1.Text != string.Empty && tbS2.Text ==

string.Empty && tbS3.Text != string.Empty)

{

MessageBox.Show("Length of the base side isn't complete",

"Warning", MessageBoxButtons.OK, MessageBoxIcon.Warning);

}

else if (tbS1.Text != string.Empty && tbS2.Text !=

string.Empty && tbS3.Text == string.Empty)

{

MessageBox.Show("Length of the base side isn't complete",

"Warning", MessageBoxButtons.OK, MessageBoxIcon.Warning);

}

else if (tbS1.Text != string.Empty && tbS2.Text ==

string.Empty && tbS3.Text == string.Empty)

{

MessageBox.Show("Length of the base side isn't complete",

"Warning", MessageBoxButtons.OK, MessageBoxIcon.Warning);

}

else if (tbS1.Text == string.Empty && tbS2.Text ==

string.Empty && tbS3.Text != string.Empty)

{

MessageBox.Show("Length of the base side isn't complete",

"Warning", MessageBoxButtons.OK, MessageBoxIcon.Warning);

}

else if (tbS1.Text == string.Empty && tbS2.Text !=

string.Empty && tbS3.Text == string.Empty)

{

MessageBox.Show("Length of the base side isn't complete", "Warning",

MessageBoxButtons.OK, MessageBoxIcon.Warning);

}

else if (tbS1.Text == string.Empty & tbS2.Text ==

string.Empty & tbS3.Text == string.Empty)

{

MessageBox.Show("Length of the base side is empty",

"Warning", MessageBoxButtons.OK, MessageBoxIcon.Warning);

}

else

{

try

{

double s1 = Convert.ToDouble(tbS1.Text);

double s2 = Convert.ToDouble(tbS2.Text);

double s3 = Convert.ToDouble(tbS3.Text);

double t = Convert.ToDouble(tbTinggi.Text);

urutkanAngka(s1, s2, s3);

if (a + b > c)

{

double setengah = 0.50000;

double s = setengah \* (a + b + c);

double volume = (Math.Sqrt(s \* (s - a) \*

(s - b) \* (s - c))) \* t;

volume = Math.Round(volume, 2);

tbVSegitiga.Text = Convert.ToString(volume);

double luasPermukaan = 2.00000 \* s + (t\*(a + b + c));

luasPermukaan = Math.Round(luasPermukaan, 2);

tbSSegitiga.Text = Convert.ToString(luasPermukaan);

}

else

{

MessageBox.Show("Base side isn't a triangle,

please re-enter the length of base side!", "Warning",

MessageBoxButtons.OK, MessageBoxIcon.Warning);

}

}

catch

{

MessageBox.Show("Please enter a number!", "Warning",

MessageBoxButtons.OK, MessageBoxIcon.Warning);

}

}

}

}

}

User control ucPrism, berfungsi untuk menghitung volume dan luas permukaan dari prisma segitiga dan tabung. Untuk prisma segitiga, perintah menghitung volume dan luas permukaan akan dijalankan jika semua komponen telah dimasukkan dan harus diisi dengan angka serta sisi alas merupakan segitiga. Untuk tabung, perintah menghitung volume dan luas permukaan akan dijalankan jika jari-jari dan tinggi tabung telah diisi dan harus diisi dengan angka.

Calculator.cs

using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Drawing;

using System.Data;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.Windows.Forms;

namespace TA\_PBO

{

public partial class Calculator : UserControl

{

double FirstNumber = 0;

string Operation;

double SecondNumber;

public Calculator()

{

InitializeComponent();

}

private void btn0\_Click(object sender, EventArgs e)

{

tbHasil.Text = tbHasil.Text + "0";

}

private void btn1\_Click(object sender, EventArgs e)

{

if (tbHasil.Text == "0" && tbHasil.Text != null)

{

tbHasil.Text = "1";

}

else if (tbHasil.Text == string.Empty)

{

tbHasil.Text = "1";

}

else

{

tbHasil.Text = tbHasil.Text + "1";

}

}

private void btn2\_Click(object sender, EventArgs e)

{

if (tbHasil.Text == "0" && tbHasil.Text != null)

{

tbHasil.Text = "2";

}

else if(tbHasil.Text == string.Empty)

{

tbHasil.Text = "2";

}

else

{

tbHasil.Text = tbHasil.Text + "2";

}

}

private void btn3\_Click(object sender, EventArgs e)

{

if (tbHasil.Text == "0" && tbHasil.Text != null)

{

tbHasil.Text = "3";

}

else if (tbHasil.Text == string.Empty)

{

tbHasil.Text = "3";

}

else

{

tbHasil.Text = tbHasil.Text + "3";

}

}

private void btn4\_Click(object sender, EventArgs e)

{

if (tbHasil.Text == "0" && tbHasil.Text != null)

{

tbHasil.Text = "4";

}

else if (tbHasil.Text == string.Empty)

{

tbHasil.Text = "4";

}

else

{

tbHasil.Text = tbHasil.Text + "4";

}

}

private void btn5\_Click(object sender, EventArgs e)

{

if (tbHasil.Text == "0" && tbHasil.Text != null)

{

tbHasil.Text = "5";

}

else if (tbHasil.Text == string.Empty)

{

tbHasil.Text = "5";

}

else

{

tbHasil.Text = tbHasil.Text + "5";

}

}

private void btn6\_Click(object sender, EventArgs e)

{

if (tbHasil.Text == "0" && tbHasil.Text != null)

{

tbHasil.Text = "6";

}

else if (tbHasil.Text == string.Empty)

{

tbHasil.Text = "6";

}

else

{

tbHasil.Text = tbHasil.Text + "6";

}

}

private void btn7\_Click(object sender, EventArgs e)

{

if (tbHasil.Text == "0" && tbHasil.Text != null)

{

tbHasil.Text = "7";

}

else if (tbHasil.Text == string.Empty)

{

tbHasil.Text = "7";

}

else

{

tbHasil.Text = tbHasil.Text + "7";

}

}

private void btn8\_Click(object sender, EventArgs e)

{

if (tbHasil.Text == "0" && tbHasil.Text != null)

{

tbHasil.Text = "8";

}

else if (tbHasil.Text == string.Empty)

{

tbHasil.Text = "8";

}

else

{

tbHasil.Text = tbHasil.Text + "8";

}

}

private void btn9\_Click(object sender, EventArgs e)

{

if (tbHasil.Text == "0" && tbHasil.Text != null)

{

tbHasil.Text = "9";

}

else if (tbHasil.Text == string.Empty)

{

tbHasil.Text = "9";

}

else

{

tbHasil.Text = tbHasil.Text + "9";

}

}

private void btnTambah\_Click(object sender, EventArgs e)

{

FirstNumber = Convert.ToDouble(tbHasil.Text);

tbHasil.Text = string.Empty;

Operation = "+";

}

private void btnKursng\_Click(object sender, EventArgs e)

{

FirstNumber = Convert.ToDouble(tbHasil.Text);

tbHasil.Text = string.Empty;

Operation = "-";

}

private void btnKali\_Click(object sender, EventArgs e)

{

FirstNumber = Convert.ToDouble(tbHasil.Text);

tbHasil.Text = string.Empty;

Operation = "\*";

}

private void btnBagi\_Click(object sender, EventArgs e)

{

FirstNumber = Convert.ToDouble(tbHasil.Text);

tbHasil.Text = string.Empty;

Operation = "/";

}

private void btnHasil\_Click(object sender, EventArgs e)

{

double Result;

SecondNumber = Convert.ToDouble(tbHasil.Text);

if (Operation == "+")

{

Result = (FirstNumber + SecondNumber);

tbHasil.Text = Convert.ToString(Result);

FirstNumber = Result;

}

if (Operation == "-")

{

Result = (FirstNumber - SecondNumber);

tbHasil.Text = Convert.ToString(Result);

FirstNumber = Result;

}

if (Operation == "\*")

{

Result = (FirstNumber \* SecondNumber);

tbHasil.Text = Convert.ToString(Result);

FirstNumber = Result;

}

if (Operation == "/")

{

if (SecondNumber == 0)

{

tbHasil.Text = "Cannot divide by zero";

}

else

{

Result = (FirstNumber / SecondNumber);

tbHasil.Text = Convert.ToString(Result);

FirstNumber = Result;

}

}

}

private void btnClearAll\_Click(object sender, EventArgs e)

{

tbHasil.Text = "0";

}

private void btnClear\_Click(object sender, EventArgs e)

{

tbHasil.Text = string.Empty;

}

private void btnKoma\_Click(object sender, EventArgs e)

{

tbHasil.Text = tbHasil.Text + ".";

}

private void btnKuadrat\_Click(object sender, EventArgs e)

{

if (FirstNumber == 0)

{

FirstNumber = Convert.ToDouble(tbHasil.Text);

tbHasil.Text = Convert.ToString(FirstNumber \* FirstNumber);

}

else

{

SecondNumber = Convert.ToDouble(tbHasil.Text);

tbHasil.Text = Convert.ToString(SecondNumber \* SecondNumber);

}

}

}

}

User control calculator, berfungsi untuk mengoperasikan dua buah angka sesuai dengan operator yang dipilih.

**Manfaat aplikasi**

Aplikasi ini berguna untuk memudahkan pengguna dalam menghitung volume dan luas permukaan dari balok, kubus, tabung, prisma segitiga, dan bola, menggunakan kalkulator, menerjemahkan suatu kata atau kalimat ke bahasa yang diinginkan, serta menambah ilmu mengenai rumus-rumus yang digunakan untuk menghitung volume dan luas permukaan bangun-bangun ruang terssebut.

Nb: jika translator error, harap buka melalui TA\_PBO.sln atau buka folder TA\_PBO, lalu folder bin, lalu folder debug, lalu jalankan TA\_PBO.exe.