



**FPT POLYTECHNIC**



Conceive Design Implement Operate

## **ĐÓNG GÓI SẢN PHẨM PHẦN MỀM**

**GIẢNG VIÊN: NGUYỄN NGHIỆM**

[www.poly.edu.vn](http://www.poly.edu.vn)

- ⊙ Kết thúc bài học này bạn có khả năng
  - ⊙ Tạo được file exe từ jar
  - ⊙ Đóng gói setup để cài đặt
  - ⊙ Cài đặt và chạy ứng dụng



- ❑ Sản phẩm phần mềm trước khi chuyển giao cho khách hàng cần được đóng gói
- ❑ Đóng gói sản phẩm Java Desktop qua 2 giao đoạn
  - ❖ Tạo file exe từ file jar để có thể chạy trên Window
  - ❖ Đóng gói thành file cài đặt
- ❑ Có rất nhiều phần mềm cho phép tạo exe từ jar của java, **exe4j** là một phần mềm trong số đó
- ❑ Có rất nhiều phần mềm cho phép đóng gói thành file để cài đặt, **InnoSetup** là một trong số đó

❑ Tải phần mềm tại Exe4J

❖ [https://download-keycdn.ej-technologies.com/exe4j/exe4j\\_windows-x64\\_4\\_6.exe](https://download-keycdn.ej-technologies.com/exe4j/exe4j_windows-x64_4_6.exe)

❑ Tải phần mềm InnoSetup

❖ <http://files.jrsoftware.org/is/5/innosetup-5.5.9.exe>

❑ Cài đặt Exe4J

❖ Chạy exe4j\_windows-x64\_4\_6.exe

❑ Cài đặt Inno Setup

❖ innosetup-5.5.9.exe

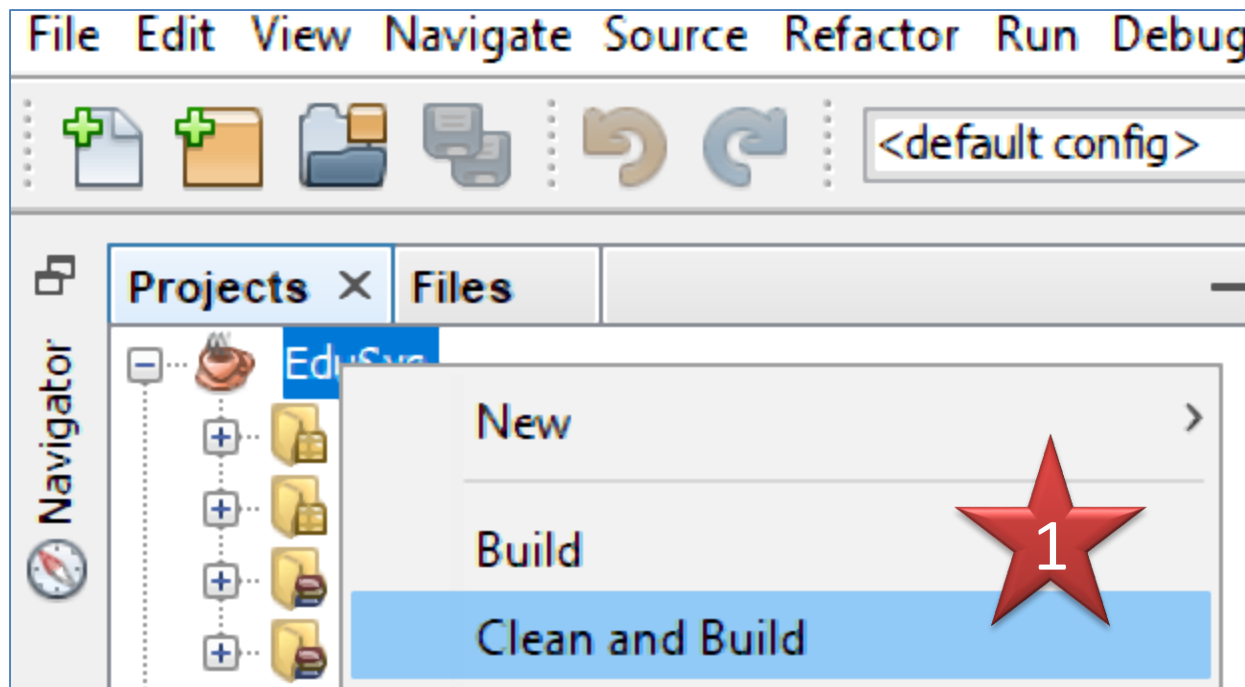


# CHUẨN BỊ TÀI NGUYÊN ĐÓNG GÓI

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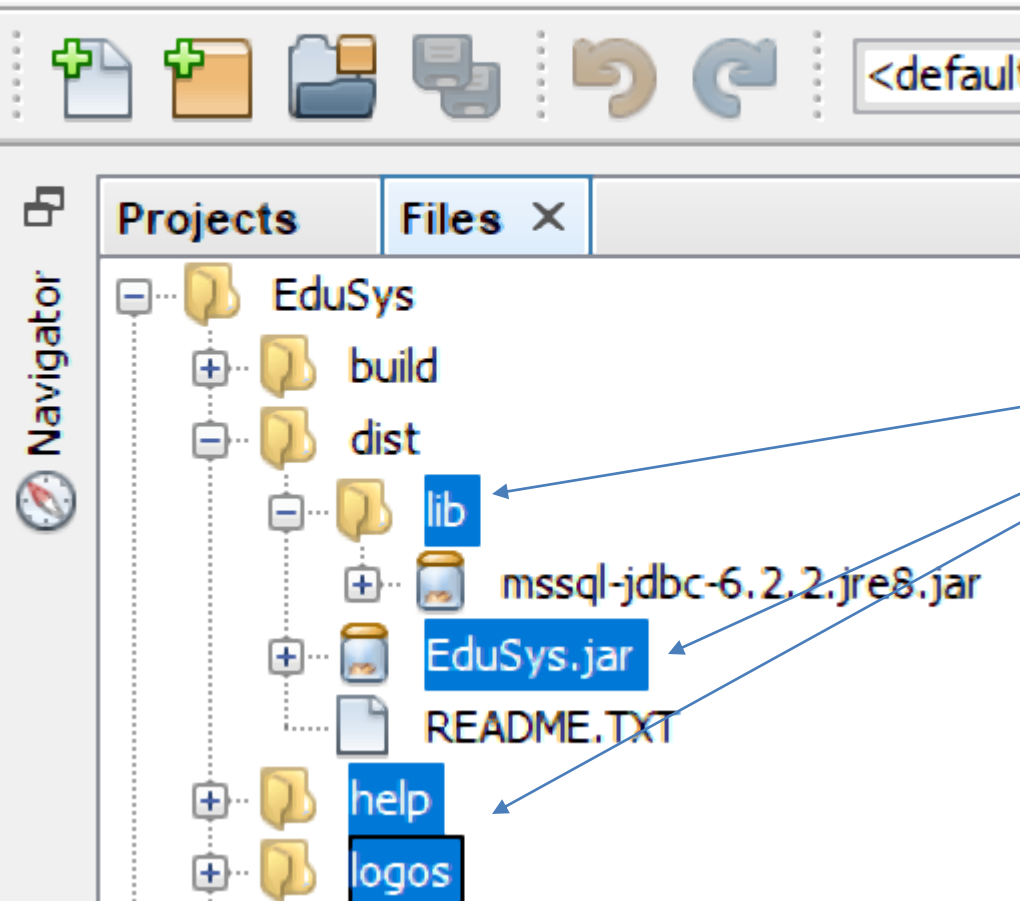
❑ Thực hiện "Clean & Build" để có được file jar

- ❖ 1. Làm sạch và dịch lại dự án
- ❖ 2. Chép lấy file jar và các tài nguyên liên quan
- ❖ 3. Tổ chức thư mục tài nguyên giống với thư mục sau cài đặt



## EduSys - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run



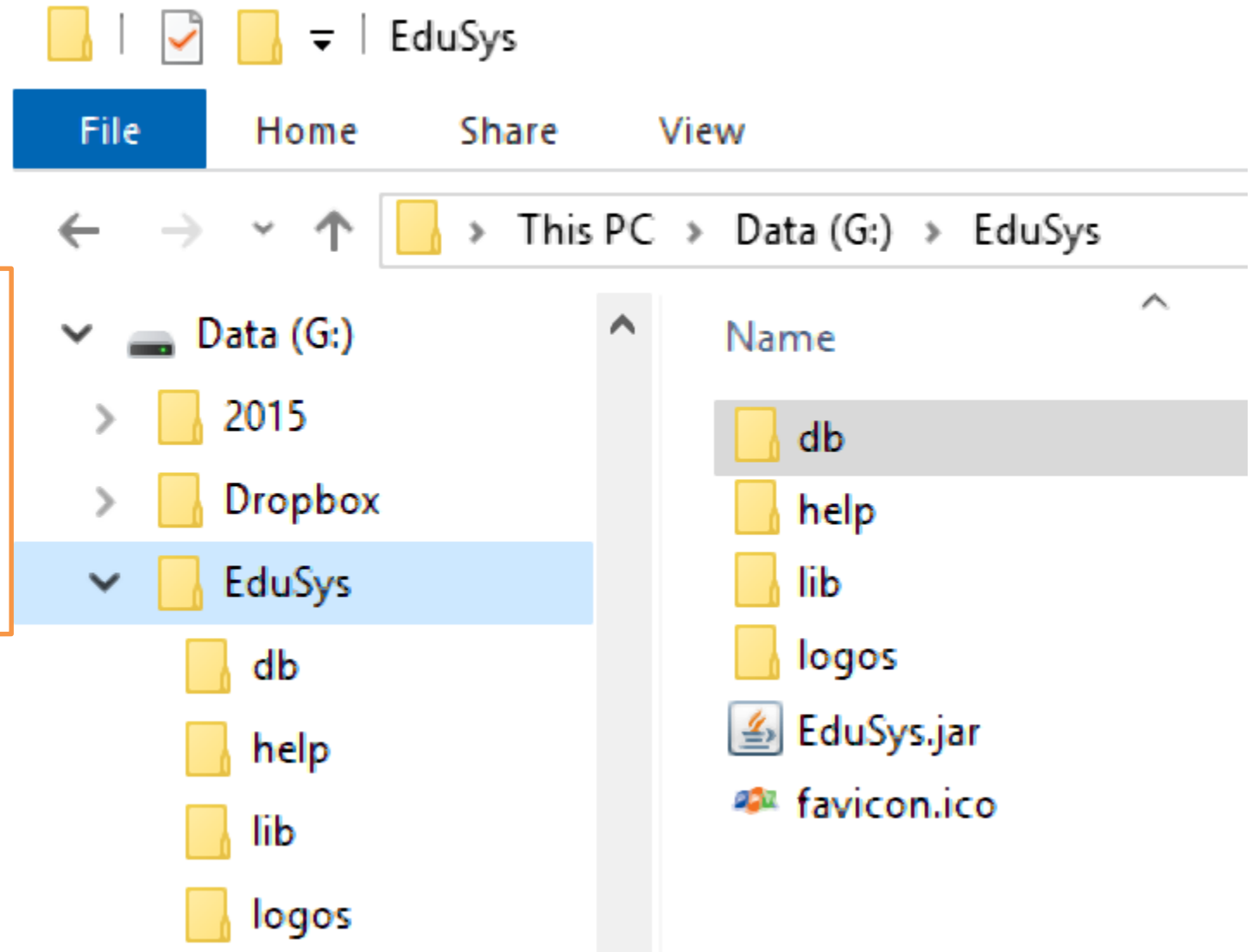
2

Chép lấy các tài nguyên cần đóng gói vào một thư mục

# THU GOM ĐẦY ĐỦ CÁC THÀNH PHẦN CẦN ĐÓNG GÓI

- ☐ Gom các tài nguyên cần đóng gói vào một thư mục

1. EduSys.jar
2. lib/\*.jar
3. help/\*.html
4. \*.ico
5. dirs

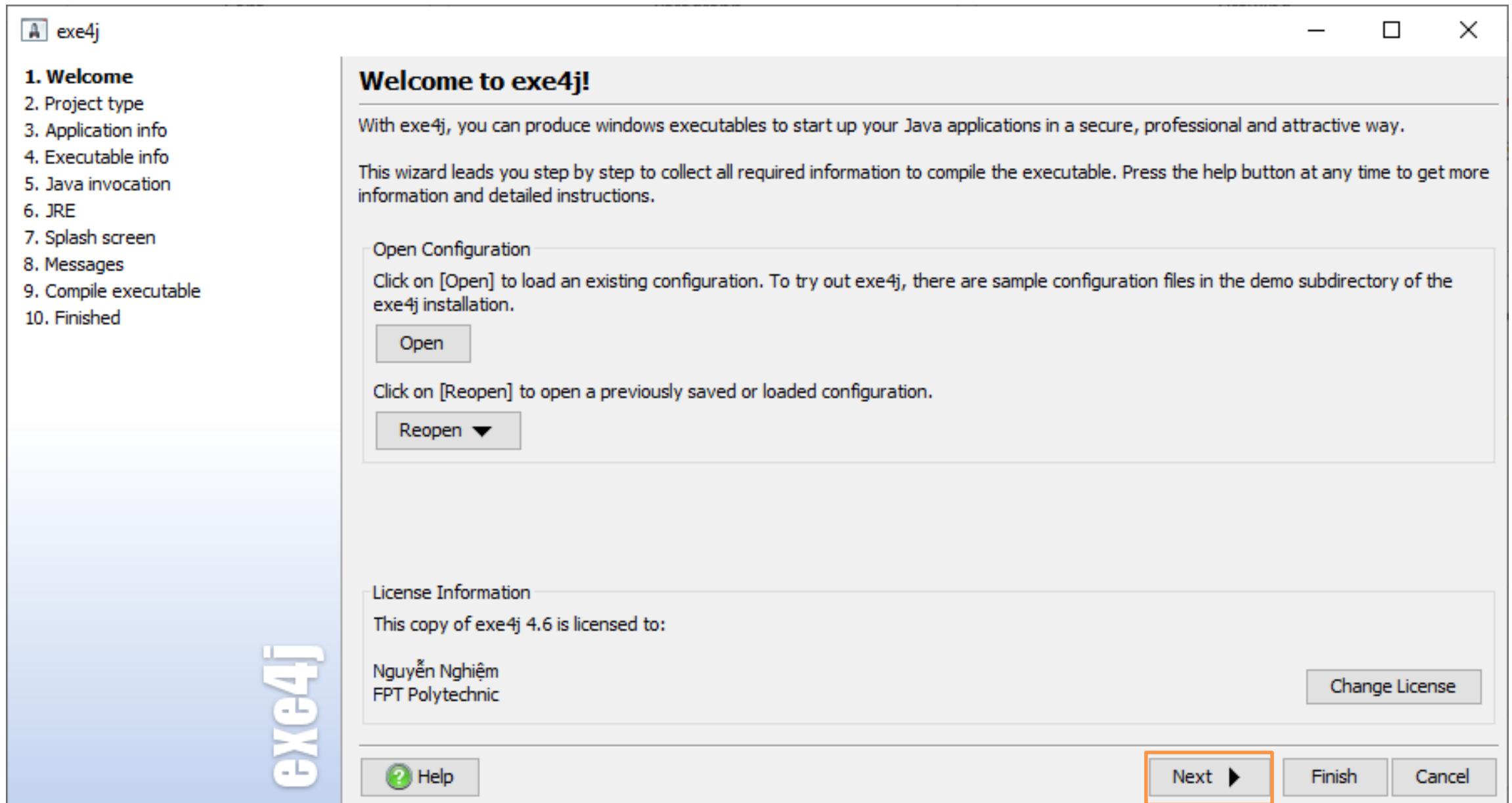


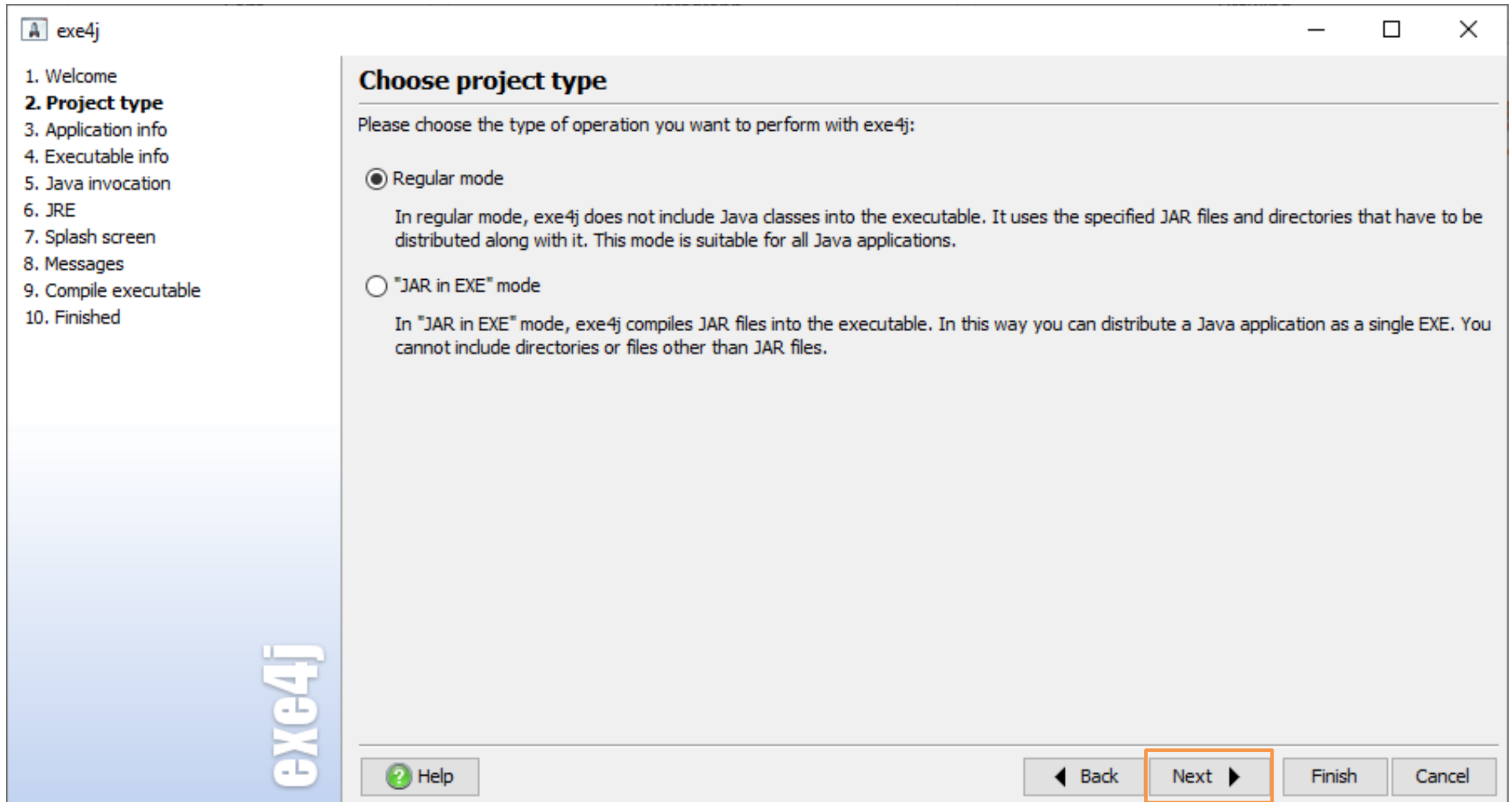




TẠO EXE VỚI EXE4J

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# TÊN ỨNG DỤNG VÀ THƯ MỤC JAR

exe4j

1. Welcome

2. Project type

3. Application info

4. Executable info

5. Java invocation

6. JRE

7. Splash screen

8. Messages

9. Compile executable

10. Finished

Configure application

General

Short name of your application: Education System

Directories

Distribution source directory: G:\EduSys

The distribution source directory is the reference point for relative directories. If necessary, directories selected in a file chooser will be converted to relative directories.

Executable directory: .

The generated executable will be copied to the executable directory. The executable directory must be below the distribution source directory. If the executable directory is left empty, it will be the same as the distribution source directory.

Thư mục chứa file exe sinh ra

Thư mục chứa file jar

exe4j

Help

Back Next Finish Cancel

# TÊN EXE, BIỂU TƯỢNG VÀ MÔI TRƯỜNG

exe4j

1. Welcome

2. Project type

3. Application info

4. Executable info

Advanced options:

Redirection

Service options

Version info

32-bit or 64-bit

Execution level

5. Java invocation

6. JRE

7. Splash screen

8. Messages

9. Compile executable

10. Finished

exe4j

Configure executable

Executable type: ☒ GUI application

☐ Allow -console parameter

☐ Console application

☐ Service

Executable name:  .exe

☒ Icon File:

☐ Allow only a single running instance of the application

☒ Fail if an exception in the main thread is thrown

☒ Change working directory to:  (relative to executable)

▼ Advanced Options

Redirection

Service options

Version info

32-bit or 64-bit

Execution level

Help

Back

Next

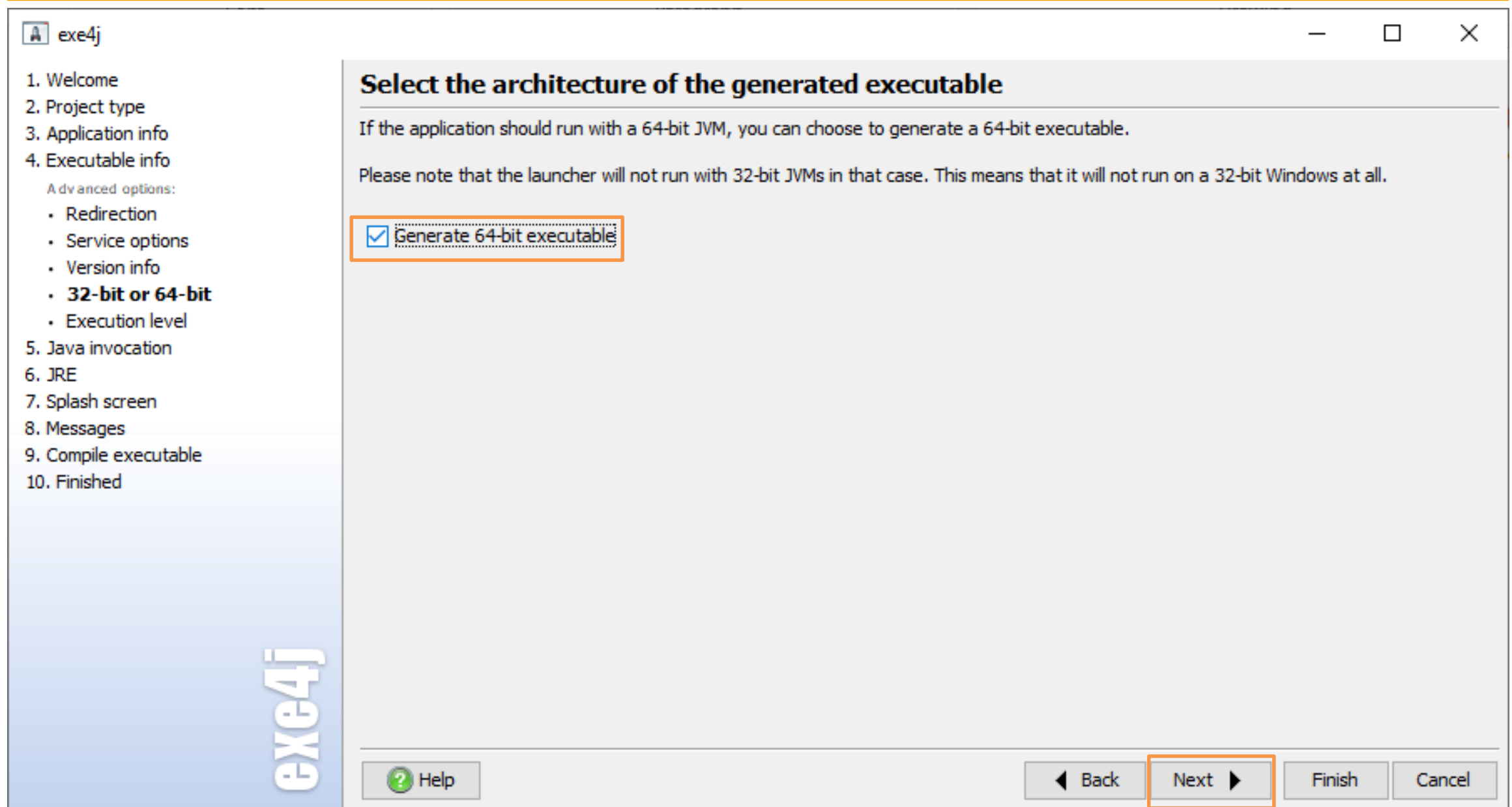
Finish

Cancel

Tên file exe sau khi chuyển đổi

Biểu tượng của file biểu tượng

Môi trường chạy



exe4j

1. Welcome
2. Project type
3. Application info
4. Executable info
  - Advanced options:
    - Redirection
    - Service options
    - Version info
    - 32-bit or 64-bit
    - **Execution level**
5. Java invocation
6. JRE
7. Splash screen
8. Messages
9. Compile executable
10. Finished

exe4j

### Choose the execution level for Windows Vista and higher

Please choose the execution level for launching the application on Windows Vista and higher. If unsure, choose "As invoker", this is the default mode for all executables.

- ☒ As invoker
- ☐ Highest available
- ☐ Require administrator

Help

◀ Back

Next ▶

Finish

Cancel

# CHỌN FILE JAR VÀ LỚP CHỨA MAIN()

**Configure Java invocation**

1. Welcome  
2. Project type  
3. Application info  
4. Executable info  
5. **Java invocation**  
6. JRE  
7. Splash screen  
8. Messages  
9. Compile executable  
10. Finished

Advanced options:

- Native libraries

☒ Allow VM passthrough

Class path:

- Archive .\EduSys.jar

**Define class path entry**

Entry Type

☐ Scan directory ☐ Directory ☒ Archive ☐ Environment variable

Error Handling

☐ Fail if an error occurs with this class path entry

Detail

Archive: .\EduSys.jar

Add the specified JAR or ZIP archive to the class path. The last path component can include a \* as a placeholder for a frequently changing version number. This is not a wildcard for processing multiple matching paths.

Note: It is highly recommended to enter a relative path. Paths are always interpreted relative to the distribution source directory.

Help OK Cancel

**Select Main Class**

Public Classes with a Main Method:

- com.edusys.ui.ChaoJDialog
- com.edusys.ui.ChuyenDeJFrame
- com.edusys.ui.DangNhapJDialog
- com.edusys.ui.DoiMatKhauJDialog
- com.edusys.ui.EduSysJFrame**
- com.edusys.ui.GioiThieuJDialog

Type into the list to start search

Filter: Q

Help OK Cancel


Toggle 'Fail on Error'

Back Next Finish Cancel

Chọn file jar

Chọn lớp chứa main()



 exe4j

1. Welcome
2. Project type
3. Application info
4. Executable info
5. Java invocation
- 6. JRE**
  - Advanced options:
    - Search sequence
    - Preferred VM
7. Splash screen
8. Messages
9. Compile executable
10. Finished

**Configure JRE**

Please define the minimum version requirements for the JRE that your application will be started with.


Minimum version:  (e.g. 1.4)

Maximum version:  (e.g. 1.6 or empty)

☐ Allow JREs with a beta version number

☐ Only allow JDKs and no JREs

▼ Advanced Options

 Help

◀ Back

**Next ▶**

Finish

Cancel

exe4j

exe4j

1. Welcome

2. Project type

3. Application info

4. Executable info

5. Java invocation

6. JRE

**7. Splash screen**

Advanced options:

- Splash screen options

8. Messages

9. Compile executable

10. Finished

Configure splash screen

Splash Screen Type

☒ No splash screen

☐ exe4j splash screen  
This is a splash screen implementation provided by exe4j that works with all Java versions. Additional configuration settings are available in the advanced options.

☐ Java 6+ splash screen  
If your minimum Java version is at least Java 6, you can use the default Java splash screen mechanism.

Image File

Image file:

▼ Advanced Options


Help

◀ Back


Next ▶

Finish

Cancel

 exe4j

1. Welcome
2. Project type
3. Application info
4. Executable info
5. Java invocation
6. JRE
7. Splash screen
- 8. Messages**
9. Compile executable
10. Finished




### Configure messages of the executable

Language: English [en]

!	Id	Message
	MessageBoxTitle	Error
	NoJvmFound	No JVM could be found on your system. \nPlease define EXE4J_JAVA_H...
	JvmInPath	The JVM found in your path is damaged. \nPlease reinstall or define EXE...
	JvmEnvVar	The {0} environment variable does not \npoint to a working JDK or JRE.
	JvmDefinedPath	The JVM found at {0} is damaged. \nPlease reinstall or define EXE4J_JA...
	JvmStart	The JVM could not be started. The maximum heap size (-Xmx) might be...
	JvmStart2	The JVM could not be started. The maximum heap size (-Xmx) might be...
	FileNotFound	File or directory {0} not found or empty \n
	WrongParameters	Wrong Parameter Usage
	EnvVarNotDefined	The environment variable {0} has to be defined
	InternalError	An internal error occurred (error code: {0})
	MainClassNotFound	Couldn't load main class.
	MainMethodNotFound	Main method not found.
	ErrorDialogCaption	Error
	ErrorDialogOk	Ok

Double-click on message column to edit a message.

 Help

◀ Back

Next ▶

Finish

Cancel

exe4j

1. Welcome
2. Project type
3. Application info
4. Executable info
5. Java invocation
6. JRE
7. Splash screen
8. Messages
9. Compile executable
- 10. Finished**

**exe4j has finished**

exe4j has been completed successfully.

The EXE for your Java application has been compiled and copied to the specified location.

 Click Here to Start the Application

**Save Configuration**

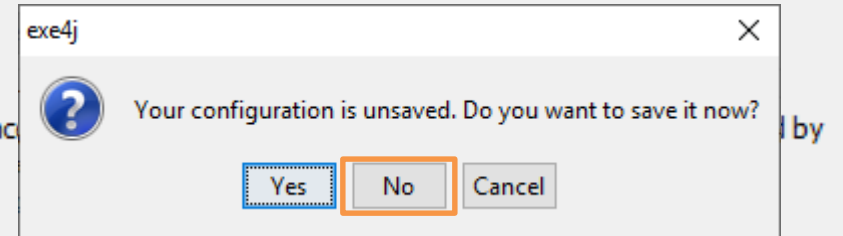
Click on [Save] to save the previously opened configuration or [Save as] to save this configuration to a different file.

Save

Save As

**Further Tips**

- To create a setup wizard for your application and to create launchers for other platforms, we recommend install4j. install4j is available at <http://www.install4j.com>
- For professional software icons, we recommend the IconExperience by exe4j. Check out the IconExperience at <http://www.iconexperience.com>

 Help

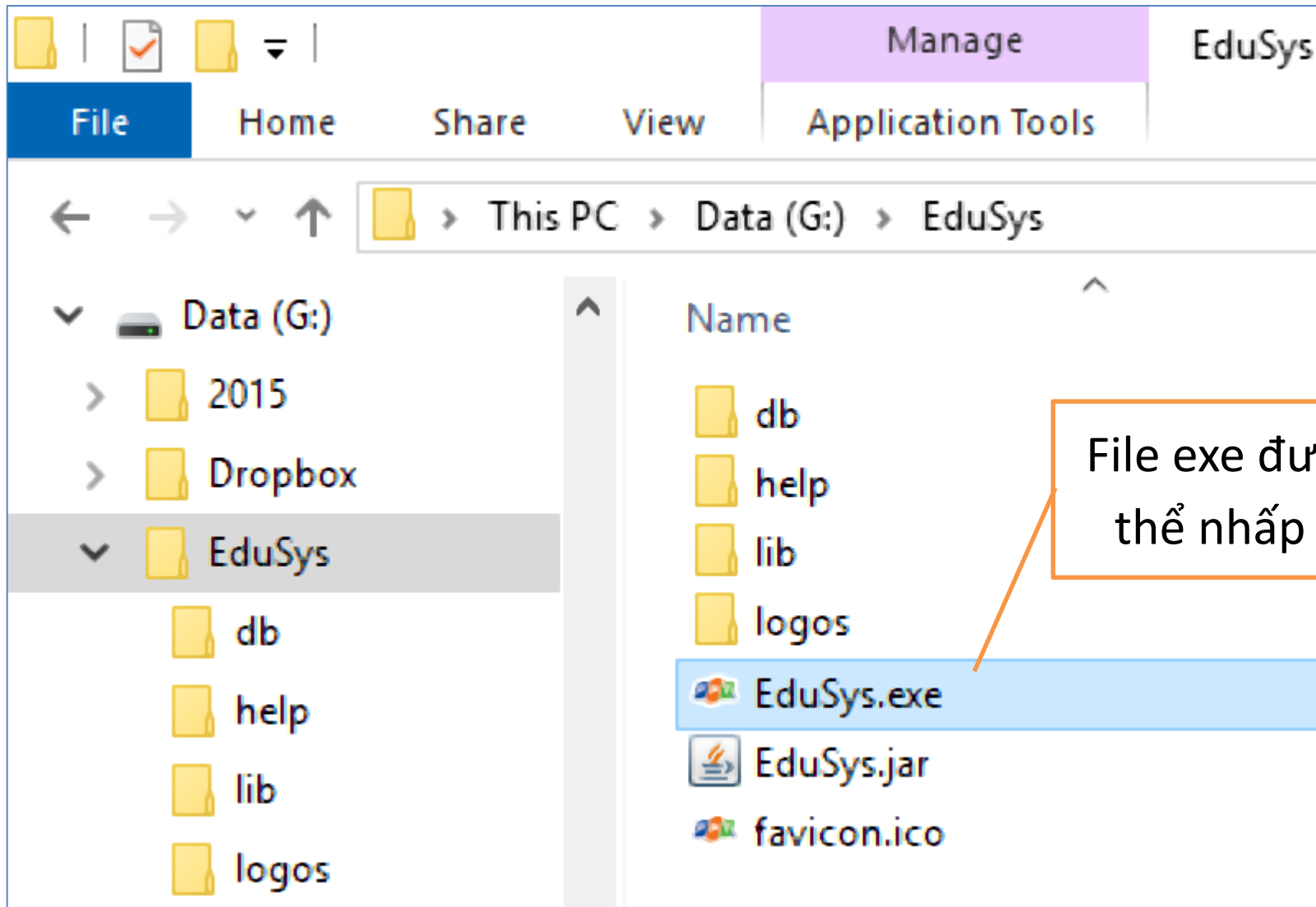
◀ Back

Next ▶

Restart

Exit

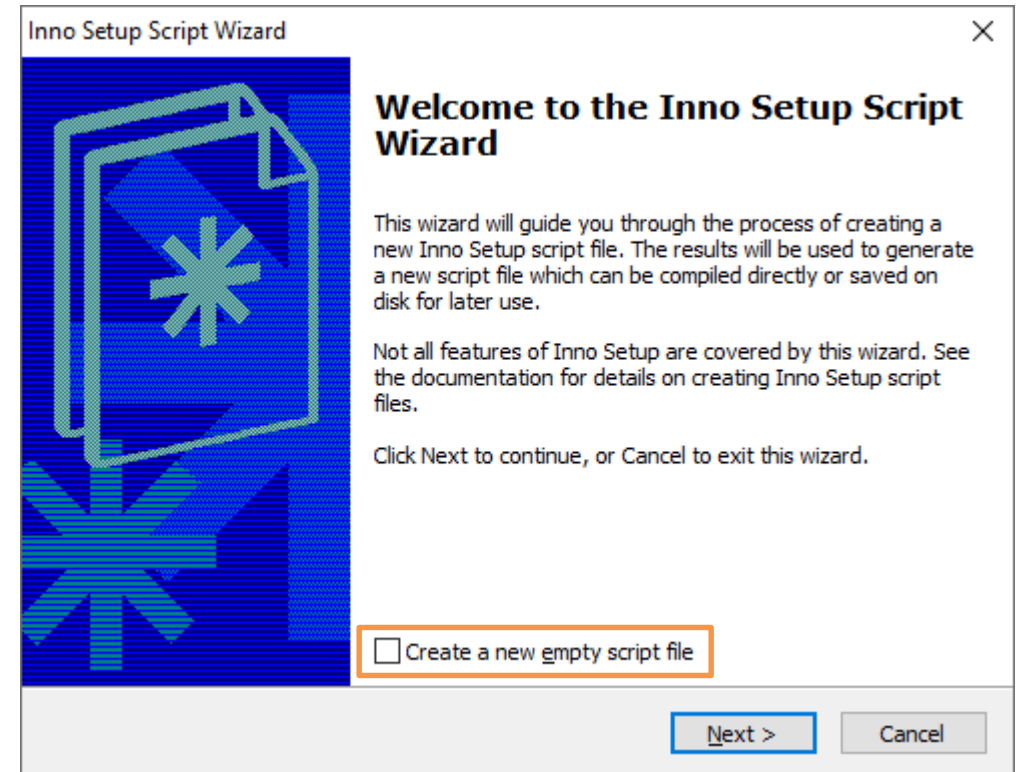
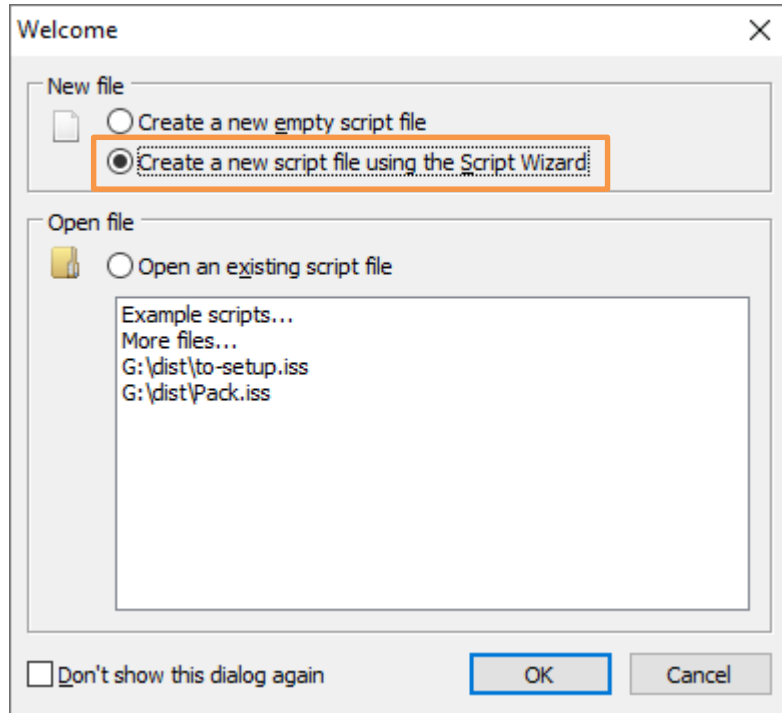
exe4j





ĐÓNG GÓI VỚI INNOSETUP

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# CUNG CẤP THÔNG TIN ỨNG DỤNG

Inno Setup Script Wizard

**Application Information**  
Please specify some basic information about your application.

**Application name:**  
Education System

**Application version:**  
1.0

Application publisher:  
FPT Polytechnic

Application website:  
http://www.poly.edu.vn

bold = required

< Back Next > Cancel

Điền tên ứng dụng, phiên bản, tên nhà phát hành và website chứa thông tin về sản phẩm



Inno Setup Script Wizard

**Application Folder**  
Please specify folder information about your application.

**Application destination base folder:**  
Program Files folder

**Application folder name:**  
EduSys

☒ Allow user to change the application folder

Other:  
☐ The application doesn't need a folder

bold = required

< Back Next > Cancel

Tên thư mục chứa ứng dụng được tạo ra lúc cài đặt



# CHỌN FILE EXE VÀ CÁC THƯ MỤC CẦN ĐÓNG

Chọn file exe chính

Inno Setup Script Wizard

**Application Files**  
Please specify the files that are part of your application.

**Application main executable file:**  
G:\EduSys\EduSys.exe Browse...

☒ Allow user to start the application after Setup has finished  
☐ The application doesn't have a main executable file

Other application files:

G:\EduSys\db\\*  
 G:\EduSys\help\\*  
 G:\EduSys\lib\\*  
 G:\EduSys\logos\\*  
 G:\EduSys\EduSys.jar

Add file(s)...  
Add folder...  
Edit...  
Remove

bold = required < Back Next > Cancel



Inno Setup Script Wizard

**Application Shortcuts**  
Please specify which shortcuts should be created for your application.

☒ Create a shortcut to the main executable in the common Start Menu Programs folder  
 Application Start Menu folder name:  
 My Program

☒ Allow user to change the Start Menu folder name  
☐ Allow user to disable Start Menu folder creation  
☐ Create an Internet shortcut in the Start Menu folder  
☐ Create an Uninstall shortcut in the Start Menu folder

Other shortcuts to the main executable:

☒ Allow user to create a desktop shortcut  
☒ Allow user to create a Quick Launch shortcut on older versions of Windows

bold = required < Back Next > Cancel

Chọn các file và thư mục được đóng  
kèm trong file cài đặt

# CUNG CẤP THÔNG TIN BẢN QUYỀN

Inno Setup Script Wizard

**Application Documentation**  
Please specify which documentation files should be shown by Setup during installation.

License file:

Information file shown before installation:

Information file shown after installation:

< Back **Next >** Cancel



Inno Setup Script Wizard

**Setup Languages**  
Please specify which Setup languages should be included.

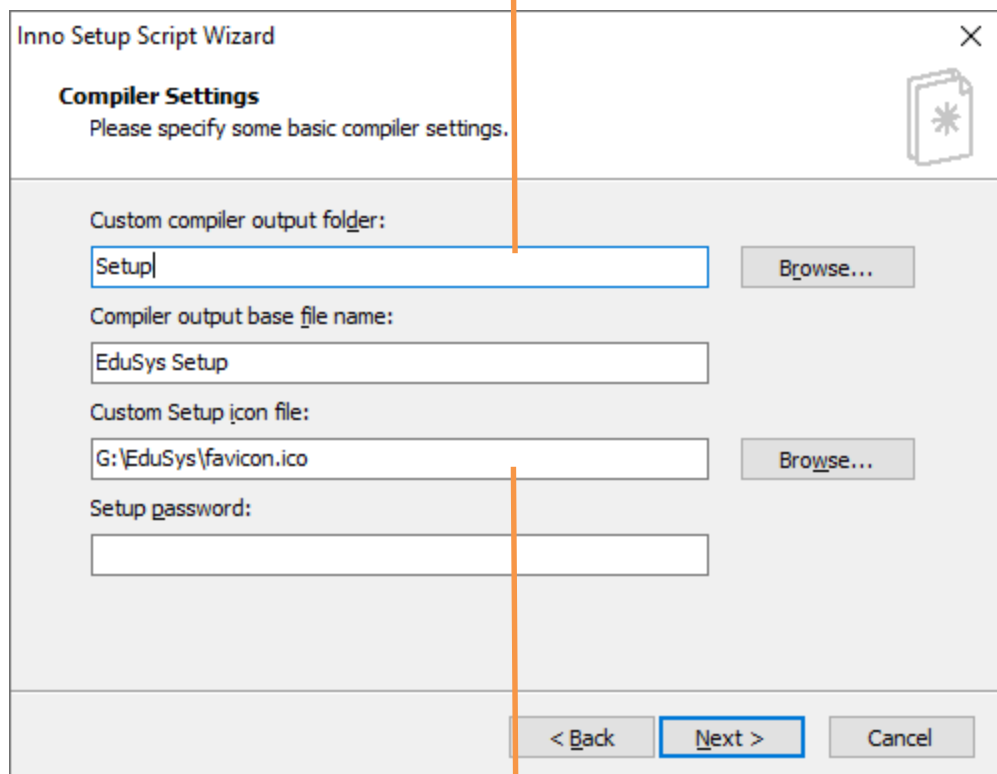
**Languages:**

- ☒ English
- ☐ Brazilian Portuguese
- ☐ Catalan
- ☐ Corsican
- ☐ Czech
- ☐ Danish
- ☐ Dutch
- ☐ Finnish
- ☐ French
- ☐ German
- ☐ Greek
- ☐ Hebrew
- ☐ Hungarian

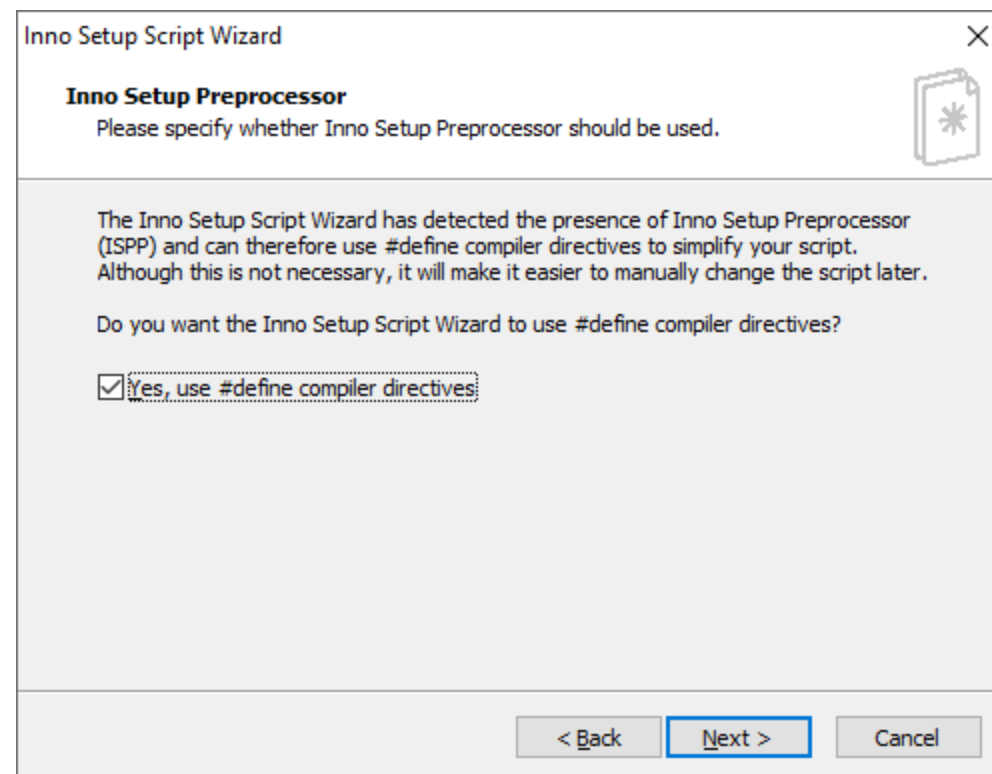
bold = required

< Back **Next >** Cancel

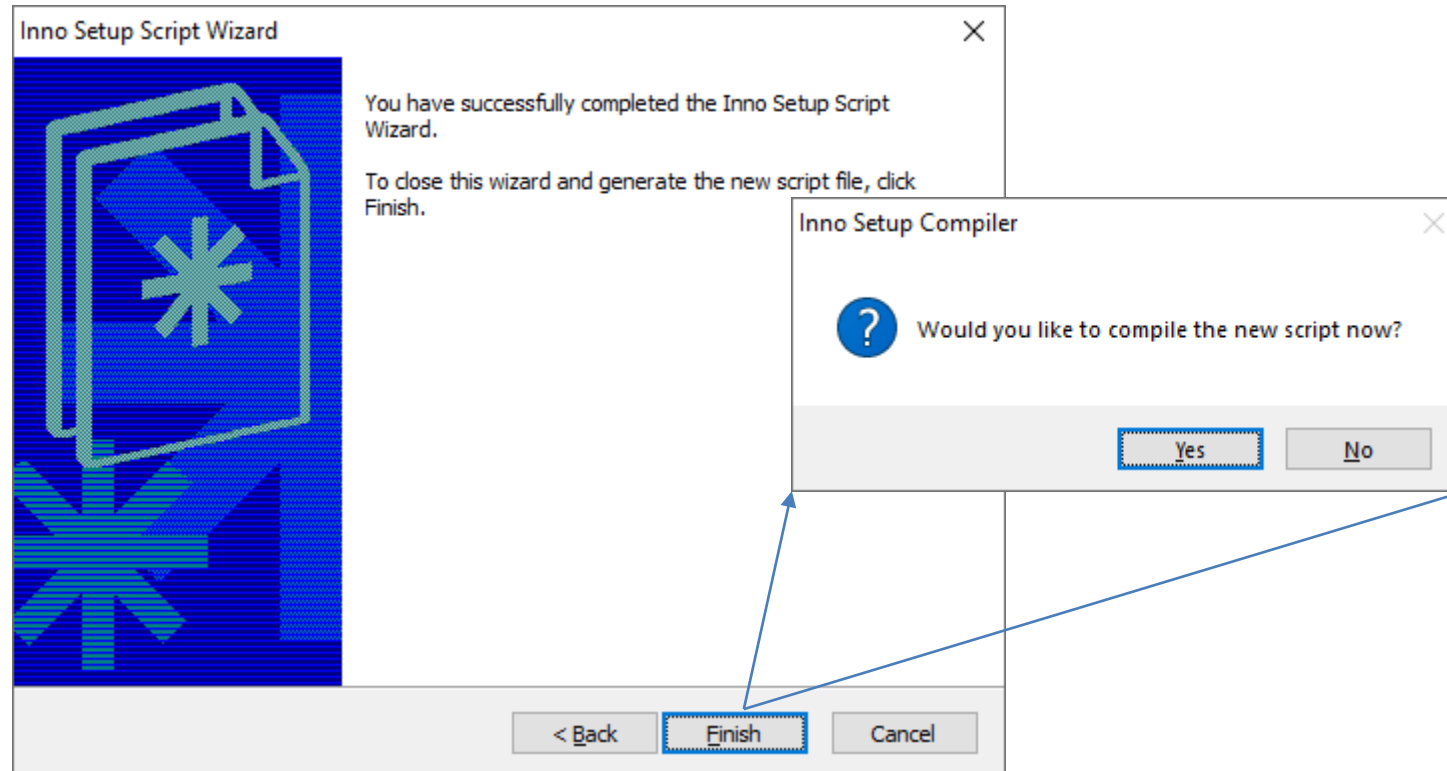
## Thư mục chứa file EduSys Setup.exe



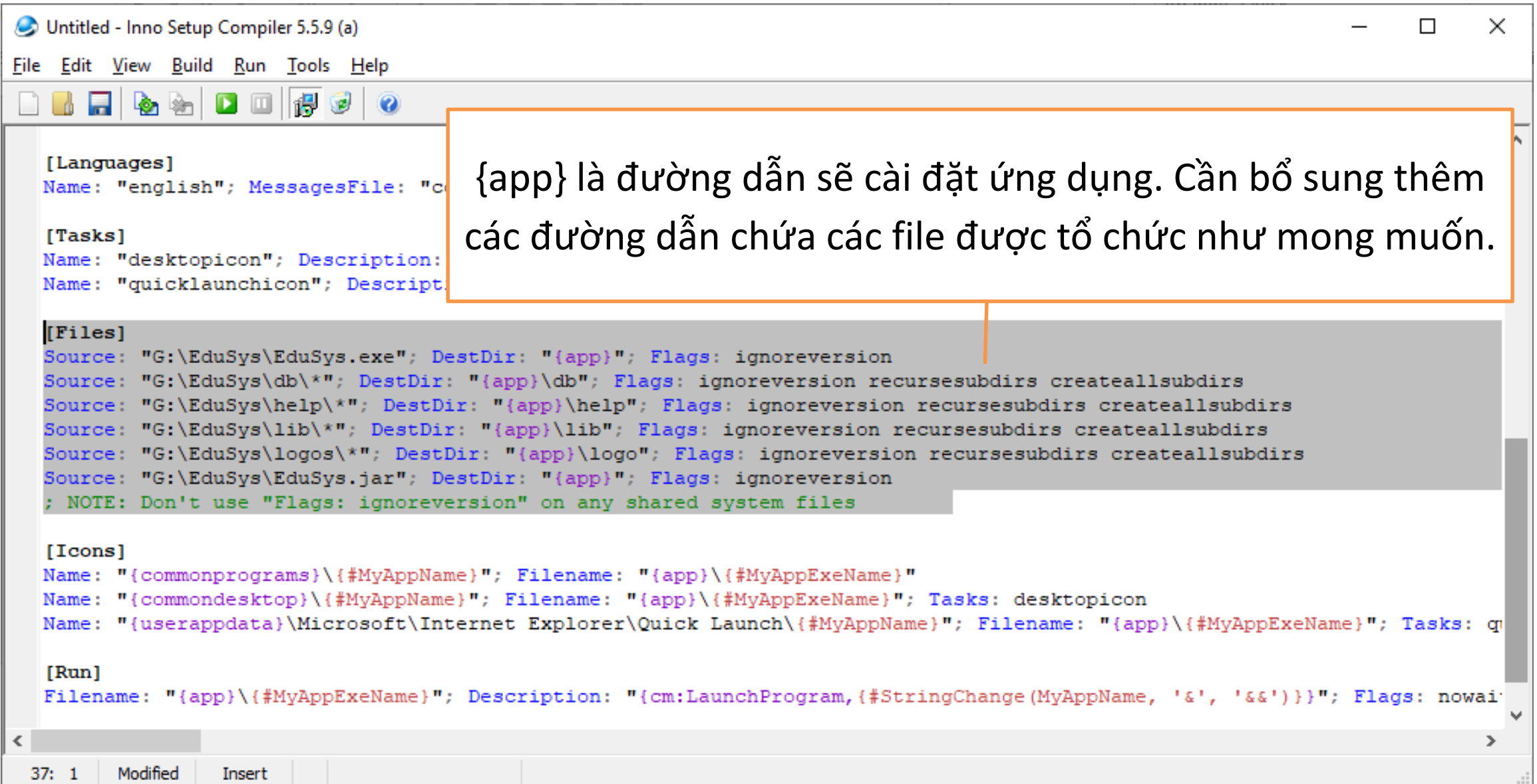
## Biểu tượng của file EduSys Setup.exe



# KẾT THÚC QUÁ TRÌNH ĐÓNG GÓI



# SCRIPT ĐÓNG GÓI CÀI ĐẶT ĐƯỢC SINH RA



Untitled - Inno Setup Compiler 5.5.9 (a)

File Edit View Build Run Tools Help

```
[Languages]
Name: "english"; MessagesFile: "c

[Tasks]
Name: "desktopicon"; Description:
Name: "quicklaunchicon"; Descript

[[Files]
Source: "G:\EduSys\EduSys.exe"; DestDir: "{app}"; Flags: ignoreversion
Source: "G:\EduSys\db\*"; DestDir: "{app}\db"; Flags: ignoreversion recursesubdirs createallsubdirs
Source: "G:\EduSys\help\*"; DestDir: "{app}\help"; Flags: ignoreversion recursesubdirs createallsubdirs
Source: "G:\EduSys\lib\*"; DestDir: "{app}\lib"; Flags: ignoreversion recursesubdirs createallsubdirs
Source: "G:\EduSys\logos\*"; DestDir: "{app}\logo"; Flags: ignoreversion recursesubdirs createallsubdirs
Source: "G:\EduSys\EduSys.jar"; DestDir: "{app}"; Flags: ignoreversion
; NOTE: Don't use "Flags: ignoreversion" on any shared system files

[Icons]
Name: "{commonprograms}\{#MyAppName}"; Filename: "{app}\{#MyAppExeName}"
Name: "{commondesktop}\{#MyAppName}"; Filename: "{app}\{#MyAppExeName}"; Tasks: desktopicon
Name: "{userappdata}\Microsoft\Internet Explorer\Quick Launch\{#MyAppName}"; Filename: "{app}\{#MyAppExeName}"; Tasks: q

[Run]
Filename: "{app}\{#MyAppExeName}"; Description: "{cm:LaunchProgram,{#StringChange(MyAppName, '&', '&&')}}"; Flags: nowai
```

{app} là đường dẫn sẽ cài đặt ứng dụng. Cần bổ sung thêm các đường dẫn chứa các file được tổ chức như mong muốn.

37: 1 Modified Insert

- ❑ Hiệu chỉnh đường dẫn cho các file tài nguyên đính kèm lúc cài đặt như phần màu đỏ sau

[Files]

Source: "G:\EduSys\EduSys.exe"; DestDir: "{app}"; Flags: ignoreversion

Source: "G:\EduSys\db\\*"; DestDir: "{app}\db"; Flags: ignoreversion recursesubdirs createallsubdirs

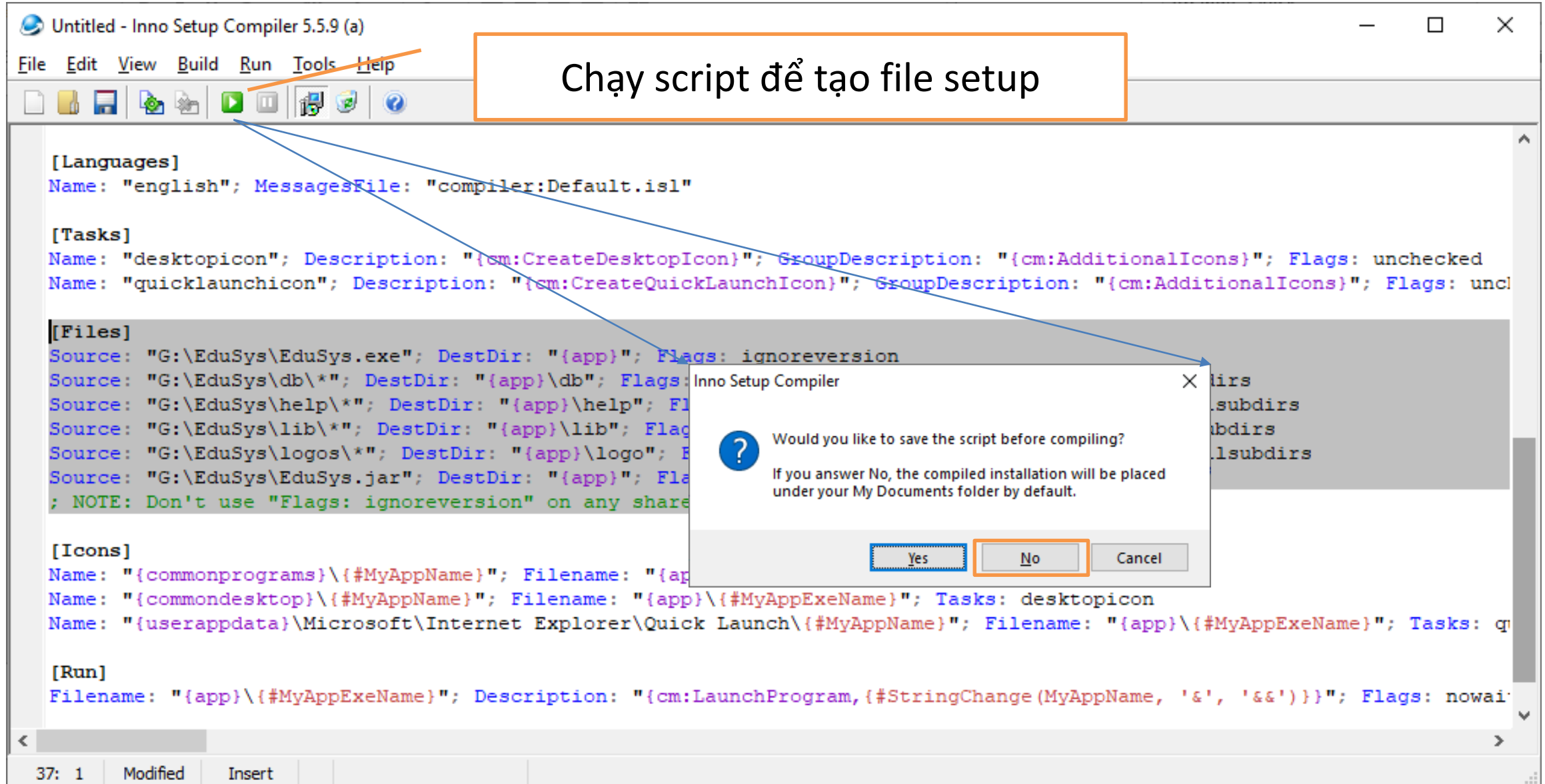
Source: "G:\EduSys\help\\*"; DestDir: "{app}\help"; Flags: ignoreversion recursesubdirs createallsubdirs

Source: "G:\EduSys\lib\\*"; DestDir: "{app}\lib"; Flags: ignoreversion recursesubdirs createallsubdirs

Source: "G:\EduSys\logos\\*"; DestDir: "{app}\logos"; Flags: ignoreversion recursesubdirs createallsubdirs

Source: "G:\EduSys\EduSys.jar"; DestDir: "{app}"; Flags: ignoreversion

; NOTE: Don't use "Flags: ignoreversion" on any shared system files



The screenshot shows the Inno Setup Compiler 5.5.9 (a) window. The 'Run' menu is highlighted with an orange box and a red arrow pointing to the 'Run' button in the toolbar. A dialog box titled 'Inno Setup Compiler' is displayed in the foreground, asking: 'Would you like to save the script before compiling? If you answer No, the compiled installation will be placed under your My Documents folder by default.' The 'No' button is highlighted with an orange box. The background window shows the script editor with the following sections:

```
[Languages]
Name: "english"; MessagesFile: "compiler:Default.isl"

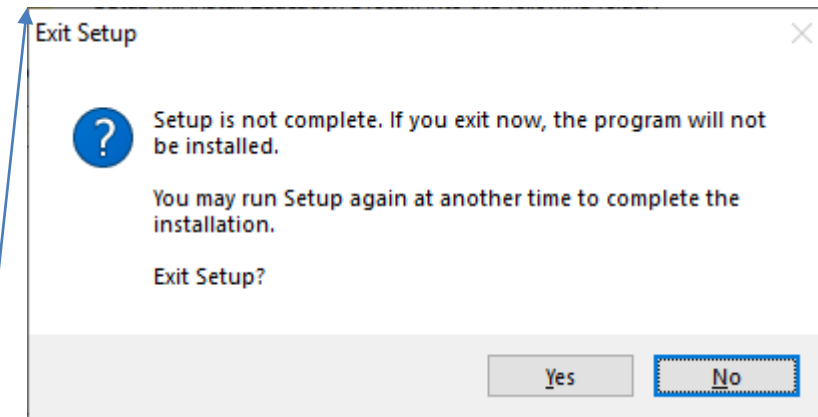
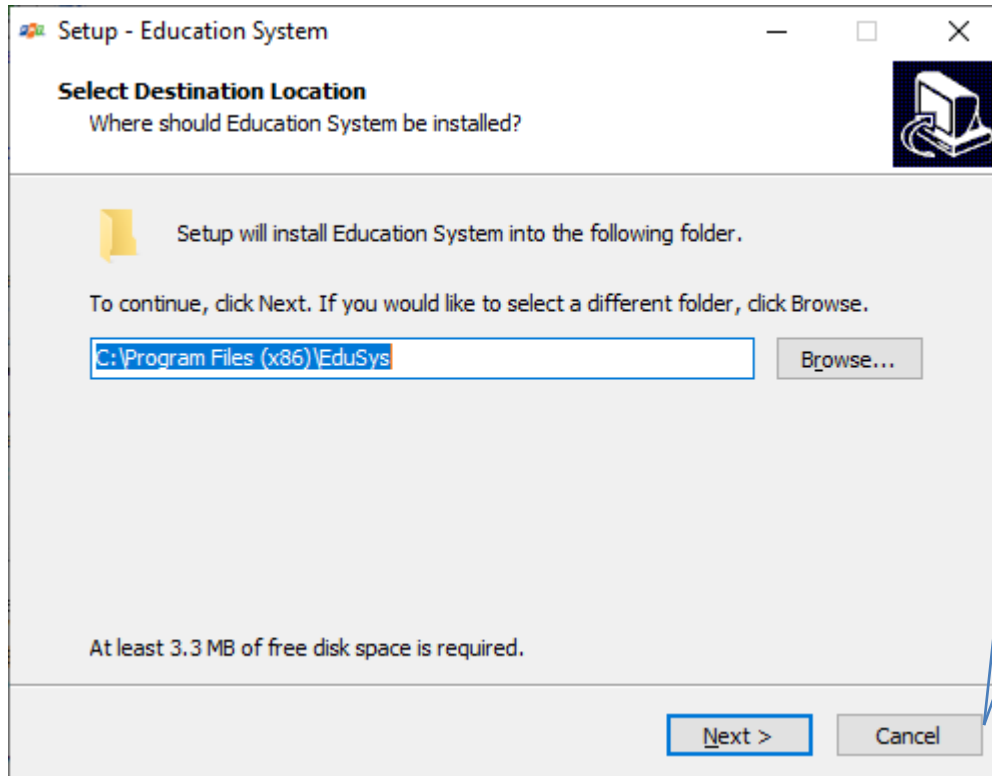
[Tasks]
Name: "desktopicon"; Description: "{cm:CreateDesktopIcon}"; GroupDescription: "{cm:AdditionalIcons}"; Flags: unchecked
Name: "quicklaunchicon"; Description: "{cm:CreateQuickLaunchIcon}"; GroupDescription: "{cm:AdditionalIcons}"; Flags: uncl

[[Files]
Source: "G:\EduSys\EduSys.exe"; DestDir: "{app}"; Flags: ignoreversion
Source: "G:\EduSys\db\*"; DestDir: "{app}\db"; Flags:
Source: "G:\EduSys\help\*"; DestDir: "{app}\help"; Fl
Source: "G:\EduSys\lib\*"; DestDir: "{app}\lib"; Flag
Source: "G:\EduSys\logos\*"; DestDir: "{app}\logo"; E
Source: "G:\EduSys\EduSys.jar"; DestDir: "{app}"; Fla
; NOTE: Don't use "Flags: ignoreversion" on any share

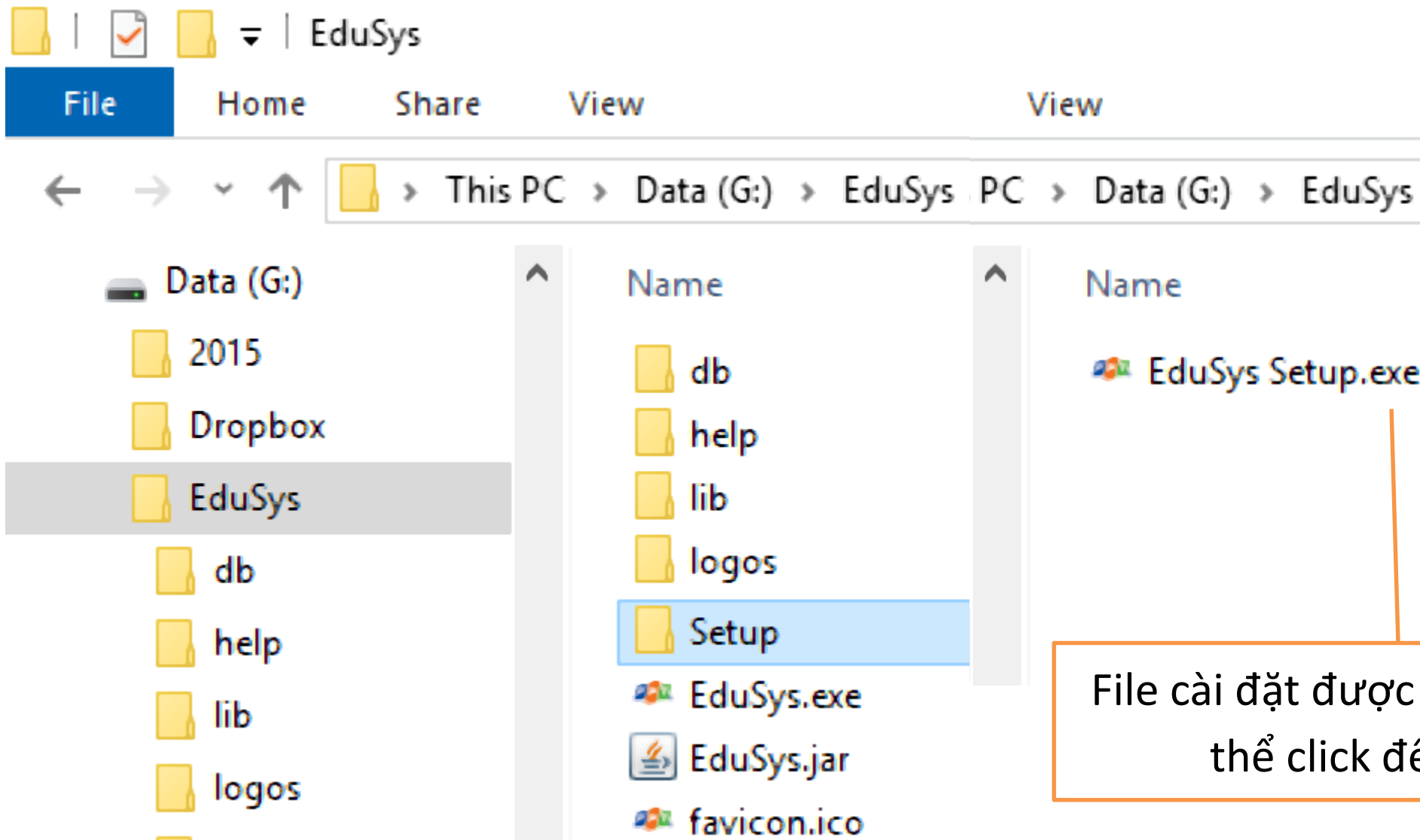
[Icons]
Name: "{commonprograms}\{#MyAppName}"; Filename: "{ap
Name: "{commondesktop}\{#MyAppName}"; Filename: "{app}\{#MyAppExeName}"; Tasks: desktopicon
Name: "{userappdata}\Microsoft\Internet Explorer\Quick Launch\{#MyAppName}"; Filename: "{app}\{#MyAppExeName}"; Tasks: q

[Run]
Filename: "{app}\{#MyAppExeName}"; Description: "{cm:LaunchProgram,{#StringChange(MyAppName, '&', '&&')}}"; Flags: nowai
```

At the bottom of the window, the status bar shows '37: 1 Modified Insert'.







File cài đặt được tạo ra, bạn có thể click để cài đặt

- ❑ Sản phẩm phần mềm thường phải đi kèm với tài liệu hướng dẫn sử dụng
- ❑ Tài liệu hướng dẫn sử dụng gồm 2 loại
  - ❖ 1. Tài liệu cài đặt, cấu hình
    - Hướng dẫn cài đặt
    - Hướng dẫn cấu hình
    - Hướng dẫn sử dụng đăng nhập lần đầu
  - ❖ 2. Tài liệu sử dụng phần mềm
    - Chụp hình các chức năng
    - Viết hướng dẫn sử dụng cho các form chức năng

- ☑ Chuẩn bị tài nguyên cần đóng gói
- ☑ Tạo file exe sử dụng Exe4J
- ☑ Tạo file cài đặt sử dụng InnoSetup
- ☑ Hướng dẫn viết hướng dẫn sử dụng





**Cảm ơn**