

# BTEC Level 3 Computing

## Unit 1 - Principles of Computer Science

Code Translation



# The issues and implications of translating code between programming languages including:



Reasons for translating code from one language to another.



Benefits of translating code from one language to another.



Drawbacks of translating code from one language to another.



The implications of translating code and the impact on:

Users.  
Organisations.  
Developers.



Alternative ways to implement current code base.



# Translation

# Why Do We Translate Code?



Old systems need to use newer technology.



Company wants to switch to a more popular language.



Need to make programs work on different devices.



Original programming language is no longer supported.



Team's expertise is in a different language.



## Advantage 1: Better Performance

Newer languages often run faster.

Modern features improve speed.

Better memory usage.

## Advantage 2: More Features



Access to modern tools and libraries.



Better security options.



More ways to improve the program.

# Advantage 3: Wider Reach



Program can work on more devices.



More developers can work on the code.



Easier to find help and resources.



# Challenge 1: Time and Cost



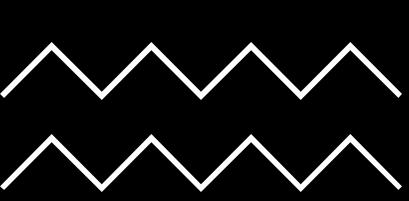
Translation takes lots of work.



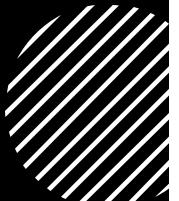
Need to test everything again.



Might need to train staff.



## Challenge 2: Possible Errors



Things might not work exactly the same.



Some features might be lost.



New bugs could appear.

# Challenge 3: Learning Curve



Users might need to learn new ways to use the program.



Developers need to learn new language.



Documentation needs updating.



# How Users Are Affected



Might need to learn new interfaces.



Program might work differently.



Could be faster or slower than before.

# User Benefits



Often get new features.



Better security.



More modern look and feel.



# User Challenges

- Need time to adjust.
- Might need training.
- Old habits need to change.

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# Business Effects



Cost of translation project.



Time spent on translation.



Staff training needed.

# Business Benefits



Easier to find developers.



Modern technology support.



Better long-term  
maintenance.

# Business Risks



Project might take longer than planned.



Unexpected problems might appear.



Temporary disruption to service.



# Developer Challenges

1

Learning new  
language.

2

Understanding old  
code.

3

Finding equivalent  
features.

# Developer Benefits

Work

Work with modern tools.

Learn

Learn new skills.

Job

Better job opportunities.

# Developer Responsibilities

1

Ensure accurate translation.

2

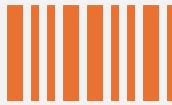
Maintain code quality.

3

Document changes clearly.



# Option 1: Wrapper Approach



Keep old code but wrap it in new code.



Less risky than full translation.



Faster to implement.

# Option 2: Gradual Replacement



Replace small parts one at a time.



Safer than changing everything at once.



Can spread cost over time.

# Option 3: Complete Rewrite

01

Start fresh in new language.

02

Most time-consuming option.

03

Chance to improve everything.



# Best Practices

Planning.

Implementation.

Maintenance.

# Planning

1

Carefully assess  
need for  
translation.

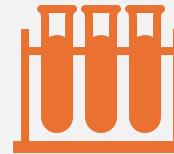
2

Choose right target  
language.

3

Set realistic  
timeline.

# Implementation



Test thoroughly.



Keep good documentation.



Train users and staff.

# Maintenance

Regular updates.

Monitor performance.

Gather user feedback.



# Real World Example: Bank System Update

Old system: Written in COBOL

New system: Converted to Java

Benefits:

Faster processing

Better security

Easier to find developers

Challenges:

Long testing period

Staff training needed

High initial cost



# Key Takeaways

- Translation needs careful planning.
- Consider all affected parties.
- Choose the right approach.
- Allow time for adjustment.
- Focus on long-term benefits.



Next Time

Unit 1 Completed...